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Supreme Court of the United States,

OCTOBER TERM, 1919.

No. [redacted]93

BERLIN MILLS COMPANY,

Petitioner,

vs.

PROCTER & GAMBLE CO.,

Respondent.

BRIEF FOR RESPONDENT.

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The Evening Post Job Printing Office, Inc., 156 Fulton St., N. Y.

CONTENTS.

	PAGE
Introductory	1
Main Defence	2
Patented Product New	3
Fundamental Principle of the Patent	6
Process Does Not and Cannot Result in Same Product as Compound	11
Chemical Reaction	12
Vegetable Compound not in Prior Art	20
To Whom the Credit is Due	24
Claimed Product Distinguishable Irrespective of the Process	31
Recognition of Difference	35
Public Resources Enlarged	37
The Patent File	40
Law of Product or Process	46
Circuit Court of Appeals' Opinion	48
Infringement	51
Moore Patent of Defendant	56
Defendant's Circulars	58
Halphen Test	62
Infringement Further Discussed	66
Law of Infringement	74
History of Art and Petitioner's Brief	80
Kayser Experimental Samples	85
Kayser Patents	93
Conclusion	103

INDEX TO CASES.

	PAGE
Alizarine Case, 111 U. S. 293	47
American Bell Co. *v.* Dolbear, 17 Fed. 604	99
Avery & Sons *v.* J. I. Case Plow Works, 139 Fed. 878	78
Badische *v.* Levenstein, 4 Pat. Design & T. M. Cases, 408	102
Boyd *v.* Cherry, 50 Fed. 279	98
Boyer *v.* Keller, 127 Fed. 130	80
Bresnahan *v.* Tripp, 102 Fed. 899	79
Brown Mfg. Co. *v.* Deere, 61 Fed. 972	80
Campbell *v.* Wesel, 124 Fed. 322	76
Canada *v.* Michigan Co., 124 Fed. 486	80
Carnegie Steel Co. *v.* Cambria, 185 U. S. 403	96
Cawood Patent, 94 U. S. 695	75
Cerealine *v.* Bates, 101 Fed. 272	47
Chicago Co. *v.* Busch, Fed. Case No. 2669	76
Chisholm *v.* Johnson, 106 Fed. 191	99
Cimiotti *v.* Bowsky, 95 Fed. 474	75
Clough *v.* Barker, 106 U. S. 166	96
Coupe *v.* Weatherhead, 16 Fed. 673	76
Diamond Co. *v.* Consolidated, 220 U. S. 441	59
Freeman Ele. Co. *v.* General Ele. Co., 191 Fed. 168	77
German Am. Filter Co. *v.* Erdrich, 98 Fed. 300	97
German Am. Filter Co. *v.* Lowe, 103 Fed. 303	98
Hobbs *v.* Beach, 180 U. S. 383	76
Kelsey *v.* Spear, 155 Fed. 976	76
Knight Co. *v.* Hubbard, 97 Fed. 795	75
Kuehmsted *v.* Farbenfabriken, 179 Fed. 701	100
Loom Co. *v.* Higgins, 105 U. S. 580	26
Manufacturing Co. *v.* Wharton, 28 Fed. 89	80
Marlin *v.* Kellogg, 139 Fed. 31	76
Maryland *v.* Dorr, 46 Fed. 773	47

	PAGE
Mast Foose & Co. *v.* Dempster Co., 82 Fed. 327	79
McCarty *v.* R. R. Co., 160 U. S. 110	79
Merrill *v.* Yeomans, 94 U. S. 568	46
Milner *v.* Yesbera, 133 Fed. 916	76
National Car Brake Co. *v.* Ry. Co., 4 Fed. 219.	80
National Cash Register Co. *v.* Amer. Cash Reg. Co., 53 Fed. 367	78
Naylor *v.* Alsop, 168 Fed. 911	101
O'Rourke Co. *v.* McMullen, 160 Fed. 93[illegible]	77
Page Woven Wire Co. *v.* Land, 49 Fed. 936..	80
Penfield *v.* Chambers, 92 Fed. 630	75
Perkins *v.* Solva, 223 Fed. 792	100
Pittsburgh Reduction Co. *v.* Cowles, 55 Fed. 301	98
Ransom *v.* New York, 1 Fish, 252	95
Roberts *v.* Harnden, Fed. Case No. 11903....	76
Ryder *v.* Schlichter, 126 Fed. 487	76
Sanitas *v.* Voigt, 139 Fed. 551	47
Scaife *v.* Falls City Mills, 209 Fed. 210	76
Schlicht Heat, etc., Co. *v.* Aeolipyle, 117 Fed. 299	60
Sewall *v.* Jones, 91 U. S. 171	74
Stevens *v.* Keating, 2 Webs. Pat. Cases, 181..	102
Tannage Co. *v.* Donallan, 93 Fed. 811	98
Thomson-Houston Co. *v.* Elmira, 71 Fed. 396	78
Thomson-Houston Co. *v.* Nassau Co., 110 Fed. 647	79
Thomson-Houston Co. *v.* Union Ry. Co., 86 Fed. 636	76
Tilghman *v.* Proctor, 102 U. S. 707	96
Tondeur *v.* Stewart, 28 Fed. 561	80
Tyler *v.* Boston, 7 Wall. 327	101
Underfeed Co. *v.* American Co., 165 Fed. 65.	76
Wickelman *v.* Dick, 88 Fed. 264	97
Wood Paper Patent, 23 Wallace, 566	47

IN THE

Supreme Court of the United States,

OCTOBER TERM, 1919.

No. 344.

BERLIN MILLS COMPANY, Petitioner, vs. THE PROCTER AND GAMBLE COMPANY, Respondent.	On Writ of Certiorari.

BRIEF FOR THE RESPONDENT.

MAY IT PLEASE THE COURT:

This is a suit in Equity brought by the Procter & Gamble Company against the Berlin Mills Company in the United States District Court for the Southern District of New York for the infringement of claims 1 and 2 of United States Letters Patent No. 1,135,351, granted to the respondent as assignee of John J. Burchenal, April 13, 1915, for a food product.

The trial began on March 21, 1917, and was completed March 29, before Judge Augustus N. Hand of the District Court. The defendant

had taken a large number of depositions, *de bene esse,* of officers and employees of The Procter & Gamble Company, which depositions were offered and admitted in evidence.

The defenses were anticipation, prior invention by one Kayser, lack of invention, limitation by the Patent Office proceedings, insufficiency of specification and non-infringement. The District Court found for the defendant and dismissed the Bill on the grounds of invalidity of the patent for lack of invention and of non-infringement.

Upon appeal to the United States Circuit Court of Appeals for the Second Circuit, this decree was reversed and the patent was found valid and infringed, Judge H. G. Ward dissenting (256 Fed. Rep. 23).

An application for rehearing, in which The American Cotton Oil Company joined as *amicus curiæ,* was also denied with an opinion reported 256 Fed. Rep. 30.

The case comes into this court by petition for writ of *certiorari* by the defendant below, with whom The American Cotton Oil Company also joined, to reverse the decree of the Circuit Court of Appeals.

The Main Defense.

The essence of the petitioner's contention and the basis of its entire argument is that the patented product does not differ from the prior art compound for the same purpose, and that the reason why the Circuit Court of Appeals sustained the claims was that they were for an old article made by a new process.

Petitioner's brief states its proposition as follows (p. 4): "The main question of law presented

"by this case is whether the claim of a patent for "an old product is sustainable as a claim for that "product made by a particular process."

We reply that the product was not old and that therefore no such question of law arises.

The petitioner errs as to fact of novelty and in applying the law to this error of fact its legal discussion is devoted to an issue not involved in the present case.

Patented Product New.

The product of the patent is not the same as the prior art compound for the following reasons:

FIRST: The prior art compound was cottonseed oil rendered semi-solid by the addition of about 15 per cent. of animal stearin.

In this compound the cottonseed oil is present, unchanged, so that 85 per cent. of the material still contains all of the unstable, rancid-producing liquid glycerides of the original oil, whereas in the patented product there is no cottonseed oil whatever, and some of the original unstable liquid glycerides have been converted into more stable components.

In the prior art compound the proportion of linolin and glycerides of lesser saturation to the olein remained the same as in the cottonseed oil. In the patent the proportion of linolin and the glycerides of lesser saturation to the olein is decreased.

This is the very object of the invention stated in the patent whereby the inventor furnishes a product essentially different from anything previously known.

Because the patented product consists of a single substance (cottonseed oil) chemically changed throughout the proportions of all its constituents to each other, it is homogeneous, as stated by the specification and claims 1 and 2 in issue.

SECOND: The lard compounds consisting of cottonseed oil rendered semi-solid by the admixture of hard hydrogenized cottonseed oil, and identified in the record under the brand name Flake White of the respondent and Jewel of Swift and Company, are not the same thing as the patented product, because the vegetable stearin is added to the cottonseed oil just as in the case of the animal stearin and **the proportion of linolin and glycerides of lesser saturation to olein is not decreased or changed** (*infra*, pp. 6 to 20).

THIRD: *The all-vegetable compound, however, is not truly a part of the prior art,* as it is assumed to be by the petitioner, but on the contrary it is covered by a companion application of Burchenal filed on the same day with the patent in suit and contemporaneously pending and issued on the same day, patent No. 1,135,935 (*infra*, p. 20).

The law is well settled that neither of two companion applications of the same applicant copending in the Patent Office can be treated as prior art before the other.

Therefore, the whole argument of petitioner's brief to the effect that the product of the patent in suit or defendant's product cannot be distinguished as a product from the all-vegetable compound (even if it were true, which it is not) is entirely irrelevant.

FOURTH: The Patent Office, however, *fully recognized* that the *patented product* was *different* from the compound product of the companion patent of Burchenal and for the purpose of clearly distinguishing the one from the other the final proceeding in the Patent Office was to amend the claims of the patent in suit by characterizing the product as "homogenous" in the sense of being made up of a single unit, chemically changed throughout, as distinguished from the mixture of two units such as the compounds (*infra*, p. 32).

FIFTH: The prior art products were mixtures of a vegetable oil and a hard animal fat (oleostearin), whereas the patented product is a new fat of purely vegetable constitution.

The Government recognizes the fundamental *difference* between a vegetable fat and an animal fat by subjecting the animal fat to inspection and stamp (34 Stat. L. 1260-5), while no such inspection is required of the vegetable lard (McCaw, Rec. pp. 92, 186).

It would seem almost self-evident that a vegetable cooking fat could not be the same as an animal fat. The difference is pointed out by the patent in suit (p. 1, line 97) and in defendants' circulars (*infra*, p. 60).

SIXTH: Not only did the Patent Office recognize the difference between Flake White, the mixture, and Crisco, the homogeneous product, but the great *manufacturers of lard* substitutes *clearly distinguish* between the two products. Concerns like Swift and Company who manufacture millions of pounds of the mixed product using the vegetable hard hydrogenized cottonseed oil have no hesitancy in stating that they do not and never have made the patented product (*infra*, p. 35).

SEVENTH: The petitioner itself in its trade circulars and booklets continually insists that its alleged infringing product Kream Krisp is not like a lard compound or mixture but "contains no oil itself" and as a product is far superior to any compound (*infra*, pp. 58 to 62).

The patented product is, therefore, new chemically and commercially, and is so recognized by two departments of the Government, by the large manufacturers of lard compound and by the petitioner itself.

The Fundamental Principle of the Patent.

The fundamental principle of the patented product, and of Kream Krisp is that **the danger of rancidity to which cottonseed oil is addicted is reduced in proportion as the linolin and lesser saturated ingredients are reduced relatively to the olein.**

In every degree that the linolin and lesser saturated glycerides are reduced relatively to the olein, according to the fundamental principle of the patent, to that same degree, the danger of rancidity is reduced.

This fundamental rule or principle was never embodied in any of the "compounds", because in all the compounds the proportions of the linolin and lesser saturated elements relatively to the olein remained the same as in cottonseed oil.

In the product of the patent, rancidability is reduced by the readjustment of the relative proportion between the olein, linolin and lesser saturated glycerides.

The product of the patent consists of a single

substance (cottonseed oil) chemically changed throughout and therefore homogeneous. The prior art consisted of two respectively unchanged substances (cottonseed oil and stearin) compounded, and therefore not homogeneous.

The patent points out the greater tendency of the linolin and glycerides of lower saturation towards rancidity than the olein, as follows (p. 1, line 22):

"All such vegetable oils contain glycerids of un-
"saturated fatty acids, and among these, notable
"quantities of fatty glycerids of lower saturation
"than olein. It is the presence of these glycerids
"of lower saturation that seriously affects the ran-
"cidity of the material. Oxidation is largely the
"cause of rancidity, which oxidation weakens the
"fat at the point of absorption at the double bonds,
"and these glycerids of lesser saturation readily
"absorb oxygen from the air at ordinary tempera-
"tures, while the more highly saturated glycerids,
"as olein, only absorb oxygen at elevated tempera-
"tures."

Defendant's expert Walker substantially confirms the above statement of the patent (x-Q. 188, p. 337) and they are also confirmed by defendants' circulars (*infra*, p. 61) as to its product.

The fundamental principle first above stated is set forth in the following sentence of the Burchenal specification, immediately following the introduction (p. 1, lines 14 to 22):

"The special object of the invention is to pro-
"vide a new food product for a shortening in cook-
"ing, in which the liability to become rancid is
"minimized, and in which the components" [*i. e.*, linolin and glycerides of lesser saturation] "of such
"vegetable oils which are inferior and detrimental
"to use as such a food product have been to a large
"extent converted into a higher and more whole-
"some form."

In other words, the principle or rule here stated is that **to the extent that the linolin and lesser saturated glycerides are decreased proportionately to the olein, to that extent the "liability to become rancid is minimized".**

In applying this fundamental principle to the best possible advantage, Burchenal decreased the linolin and lesser saturated glycerides relatively to the olein to the extent which is the subject of claims 3 to 7, wherein the principle is carried to the extent that the content of linolin and lesser saturated glycerides is much less than the content of olein; but the carrying of the fundamental principle to this extent is obviously not of the essence of the invention and obviously not required by the leading paragraph of the specification, above quoted, or by claims 1 and 2.

The patentee was required by statute, Sec. 4888, to describe "the best mode in which he has contem-"plated applying that principle", and has complied by the following description, conforming with the specific claims 3 to 7 (p. 1, line 65, *et seq.*):

"It is, therefore, my object in the preparation of "my new lard-like composition and food-product, "and in preparing same from cottonseed oil, to "change the chemical composition of the oil to "obtain a product with a high percentage of "olein, a low percentage of linolin and the lesser-sat-"urated fats, and with only sufficient stearin to "make the product congeal at ordinary tempera-"tures.

"In manufacturing this product, cottonseed or "other vegetable oil is caused to chemically absorb "a limited amount of hydrogen by reacting on the "oil with hydrogen in the presence of a catalytic "agent and at an elevated temperature. * * *

"According to the present invention, the amount "of hydrogen absorbed is carefully regulated and "limited. In practice, the operation is stopped when "the oil has been converted into a product which "cools to a white or yellowish semi-solid more "closely resembling lard than do the commercial "mixtures of cottonseed oil and animal oleo stearin, "while in many respects the product is superior to "the best leaf lard as a shortening."

The tests and analyses which follow in the specification are all true of the best form of product, the subject of claims 3 to 7, in which the fundamental principle of the invention set forth in the earlier part of the specification is carried to the maximum extent or degree, and the extent to which it is carried in the manufacture of Crisco.

In Kream Krisp the defendant has not carried the fundamental principle of the patent to the same extent as expressed in claims 3 to 7, and, therefore, has not been sued under those claims. In other words, while in Kream Krisp the relative proportion of linolin and lesser saturated glycerides has been materially reduced relatively to the olein (as admitted by petitioner's analyses set forth at page 61 of its brief), and it has, therefore, proceeded according to the fundamental principle of the patent, it has not been carried to the best extent or degree or as required by claims 3 to 7.

While the product is to be semi-solid and adapted for the thousands of recipes of the house-wife or cook where lard is specified, the inventor's idea was also not to increase the stearin element any more than necessary to produce a lard-like consistency such as is possessed by both Kream Krisp and Crisco. On this the patent says:

> "On the other hand, while it is important to get rid of the readily oxidizable glycerids

of lower saturation, it is also important not to supply too large a per cent. of fully saturated glycerids. The saturated glycerids of the arachidic, stearic, palmitic and other groups are of very small value for shortening, inasmuch as it is the liquid fats which contribute this value to the material. Saturated fats, however, serve the purpose of congealing the shortening within the food, and thus retain it equally distributed throughout the whole. Oil, liquid at the ordinary temperature, does not make the best shortening, because the oil remains liquid, keeping the food in a soggy condition, and the oil will even settle to the under part of the cooked product and soil the cloth, paper, or whatever it may come in contact with" (lines 41-60, p. 1).

All these results are secured by observing the requirement (line 72, p. 1) that the stearin be only sufficient "to make the product congeal at ordinary temperatures", which is admittedly true of Kream Krisp and Crisco.

Claims 1 and 2 specify a "lard-like" "incompletely hydrogenized" vegetable or cotton-seed oil. It is an invariable rule of this product that the percentage of the non-rancidable olein is higher and the percentage of the rancidable linolin is lower than in cottonseed oil, while the percentage of stearin is just sufficient to make the product congeal at ordinary temperature. Both Kream Krisp and Crisco conform to this rule, whereas every compound departed therefrom.

The Incomplete Hydrogenation of Cottonseed Oil Does Not and Cannot Result in the Same Product as Stearin Mixed with Cottonseed Oil.

When stearin is added to cottonseed oil, only the proportion of stearin to the other ingredients is increased—that is all. The percentage of the other ingredients relatively to each other is unchanged. This is obvious.

When, however, cottonseed oil is hydrogenized to a lard-like consistency, the product is totally different. Not merely is the proportion of stearin to the other ingredients increased but the proportion of those other ingredients to each other is changed; the non-rancidable olein being somewhat raised and the rancidable linolin and lesser saturated ingredients being lowered.

Therefore, it is strictly true of the incompletely hydrogenized body that it contains no cottonseed oil, because the proportion of every ingredient, and particularly of the liquid ingredients to each other is changed.

As the patent says:

> "While but partially hydrogenized, containing from about 1.5% to 2.5% of additional hydrogen more than in the nonhydrogenized material, it shows no free cottonseed oil when subjected to the Halphen test, thereby differing from all commercial lard substitutes containing this oil" (lines 3-10, p. 2).

The fact that in Kream Krisp the relative proportions of linolin and olein to each other have been changed, is proved by defendant's own analyses (Rec. p. 358, Qs. 14 and 18) of cottonseed oil and Kream Krisp, respectively, being also the same

analyses used in petitioner's brief (p. 61). These analyses are as follows, omitting decimals:

	Cottonseed Oil.	*Kream Krisp.*
Linolin	46	37
Olein	32	34

It will also be observed in the above parallel that the olein has been raised, and the linolin lowered; or to quote from the Burchenal patent (p. 1, line 70), Kream Krisp has a "high percentage of olein, a low percentage of linolin" compared with cotton-seed oil.

Dr. Walker was forced to admit that in Kream Krisp "the linolin is less than in the cotton seed oil. The olein is slightly, though very slightly, greater" (p. 336, x-Q. 176). Again Dr. Walker admitted that, in Kream Krisp, "the olein would not of course be lower than the olein of the oil, because the linolin is so much more easily attacked than the olein that the tendency is to build olein up" (p. 337, x-Q. 187). And in the same answer he admits that in some analyses of Kream Krisp he has found the olein as high as 35 per cent.

If we were to make a corresponding parallel for the "compound" the figures for linolin and olein on one side of the parallel would be the same as those on the other because the mere admixture of stearin cannot change the relative proportions of linolin and olein.

The same conclusion necessarily follows from a consideration of the chemical reaction which we will take up next.

The Chemical Reaction.

It seems quite readily apparent that the test of whether or not the product of the patent is the same as those of the prior art, must have relation

to the nature of the result of a partial chemical hydrogenation on cottonseed oil as compared to the result of a physical combination of stearin with cottonseed oil, and that this comparison must be based in part upon the nature of the liquid components of the hydrogenized product as compared to the mixed product.

We have already pointed out that the product of the patent is a single substance chemically changed throughout and therefore homogeneous; the relationship in proportions between the olein, linolin and lesser saturated glycerides being readjusted to reduce the danger of rancidity.

In order to develop the facts upon this point, however, it is necessary to briefly analyze the chemical reactions taking place in an organic material when treated with hydrogen, and to take up the chemical composition of cottonseed oil in a general way. In this consideration it must also be remembered that in cottonseed oil there are a number of other components present, including glycerides weaker and more unstable even than linolin which may be affected by the hydrogen and which are not affected at all when stearin is merely added.

Dr. Walker (petitioner's expert), when asked whether refined cottonseed oil contained other ingredients besides linolin, olein and stearin, said (A. 150, Rec. p. 333):

> "A. Yes, under stearin we include the other common saturated fats palmitin; and under linolin we include the small amounts of fats of less saturation than has linolin."

Paul & Rath (Rec. p. 613) give linolinic acid (which is of lesser saturation than linolic acid) as one of the components of cottonseed oil.

Cottonseed oil also contains a large number of other components about which little is known but all of which contribute to the composition and by which cottonseed oil is distinguished from other vegetable oils (Walker, x-Qs. 155-160, Rec. 333).

Dr. Walker has explained (Rec. p. 289) the chemical difference between what is called a saturated glyceride and an unsaturated glyceride. The atoms of carbon, hydrogen and oxygen which make up the complex organic compound are assumed to have arms by which they are attached to other atoms. Carbon has four of these arms, hydrogen one, and oxygen two (Walker's Chart No. 1, Rec. p. 288).

In a saturated glyceride the atoms of carbon are all hooked up or joined with other atoms of hydrogen or oxygen. Each molecule of the glyceride consists of the glycerine radical which is tri-atomic and has united to it three molecules of the acid. Thus a molecule of glycerine and three molecules of say stearic acid make up what is called a simple triglyceride of stearin. In these complex oil compounds, however, the molecule of glycerine is usually united to different fatty acids, that is to say the three bonds of the tri-atomic glycerine element will have joined thereto, one molecule of stearic acid, another molecule of oleic and another molecule of linolic, or in other instances one of stearic and two of oleic, or two or linolic and one of oleic.

As Professor Baskerville says (p. 457):

> "I happen to know that if you take a compound with 13 carbon atoms and 28 hydrogen atoms, there are 802 possible different combinations that would give different substances with C_{13} and here we have substances which involve C_{18} and C_{15} and three times those fig-

ures plus this (indicating), so the possibilities of combinations are so great that I do not feel that we have a right, therefore, to classify these substances on the basis of the chemical composition alone." * * *

"Now, the point in that connection is the following: We do not actually know the ratios of these different mixed glycerids. We do not know some of them. We do not know whether they actually exist. We do know that we get certain groups of bodies that are liquid, and we do know that we get certain substances that are solid.

"I would like to get very clear in mind that we have here in this solid present the palmitic radical and the stearic radical joined to the glycerine. We have in the liquids the linolin and olein which may have various compositions. In other words, the chemical composition there, the actual chemical composition is not definitely and positively known" (Rec. p. 457).

Dr. Walker, on pages 287-297 of the Record, and Professor Baskerville, pages 452-457, have gone somewhat into the details of the chemical composition of these organic compounds and a glance at the charts and diagrams will show the complex character of such an oil as cottonseed oil from the chemical standpoint.

Professor Walker has pointed out that with the saturated glycerides, such as stearin, the various atoms are all joined up, the carbon atoms, each with its four arms, each grasping a hydrogen atom (Chart No. 3, p. 292). The unsaturated glycerides do not have this complete union of the atoms; some of the hydrogen atoms are missing and in that event the carbon arms grasp each other, so that distributed through unsaturated glycerides we have what are called double bonds. Where we find a glyceride

with double bonds, if we have hydrogen introduced under proper conditions, the double bond will let go and each carbon arm will take on an atom of hydrogen. Oleic acid has only one of these bonds and consequently it can take on only two atoms of hydrogen. In the case of linolic acid we have two sets of the carbon atoms which are double bonded and in this case each set can take on two atoms of hydrogen and linolic acid is thus adapted to absorb four atoms of hydrogen (Chart No. 3, p. 292). Then for the acids lower than linolic, the next lower acid has three of these double bonds and can take on six atoms of hydrogen and so on down the scale.

Now it is evident that with the glycerides of the greater number of double bonds, there will be greater opportunity for the hydrogen to unite with those glycerides than with those higher up in the scale and the *weaker more unstable glycerides will be converted first by the hydrogen.*

As Morrison says (Rec. p. 197), speaking of respondent's product, Crisco:

> "Q. 26. What did you find out as to the matter of the conversion of linolic glyceride to a higher glyceride?
>
> A. The tests we made by determining the iodin value on the fatty acids, then on the liquid fat acids, showed us that our theory, or idea, about the saturation was correct,—that the linolic to a large extent, saturated first.
>
> Q. 28. That is to say, it was your observation that the linolin was first changed to, say, olein, without a corresponding change of olein to stearin?
>
> A. That is correct, sir.
>
> Q. 29. So that in the final product you would have a fairly large proportion of olein, and a small proportion of linolein?
>
> A. That is correct, sir.
>
> Q. 30. In other words, you determined that

there is a certain selective action that takes place during the hydrogenation?

A. Yes.

Q. 31. And the speed of re-action of linolein to olein was very much greater than that of olein to stearin, under the particular conditions of hydrogenation that were then practiced?

A. Well, we tried quite a number of conditions and found that to be the same, in each case" (Rec. p. 197, Morrison's testimony).

This is confirmed by Professor Walker in answer to x-Q. 187 (p. 337, Rec.), speaking of petitioner's product, Kream Krisp:

> "The Olein would not, of course, be lower than the olein of the oil, *because the linolin is so much more easily attacked than the olein, that the tendency is to build olein up rather than drag it down.* I have an analysis which I made myself in which the olein was 35%. I do not now recall having seen an analysis higher than that." (Italics ours.)

Mr. Morrison also says:

> "Q. 59. Is it your opinion that an hydrogenized cottonseed oil, having a greater percentage of linolin, is more susceptible to oxidation than one having a smaller percentage.
> A. Yes" (Rec. p. 489).

Dr. Walker also admits that it is the linolin that oxidizes (becomes rancid) most readily of the three components of the product, although, as he is testifying about defendant's product, he makes the admission somewhat unwillingly (Rec. p. 335, x-Qs. 171-175). It is clearly established in the Record, however, and admitted in petitioner's brief, page 59, when describing respondent's method of introducing the hydrogen, and page 61, that it is

the linolin that is converted to the more stable olein or stearin when the hydrogen is introduced into the cottonseed oil. **The inevitable result is that the relative proportion to each other of the olein and linolin or lesser saturated glycerides is changed, the olein being somewhat raised and the linolin, &c., being lowered as it is in both Kream Krisp and Crisco.** There is not the slightest pretense by any one that any such conversion takes place when stearin is added to the oil from an outside source.

The two products are obviously not the same. When we increase the stearin element by mechanical addition from an outside source, or, on the other hand, increase the stearin from inside by chemical treatment, we may obtain substantially the same proportions of solid (stearin) to liquid (linolin and olein). This is all that Mr. Morrison said (Rec. pp. 495, 496), which statement is quoted with such emphasis in petitioner's brief, pages 22 and 23, and upon which they rely to establish their astonishing proposition that mechanical mixing and chemical treatment with hydrogen produce the same product.

With the mechanical addition we have just as much linolin and just as much olein as we had in the orginal cottonseed oil, while with the chemical treatment we have changed the relationship between them by decreasing the linolin and increasing the olein. Nor is this a mere change without a new and beneficial result. The weak, unstable, rancid-producing glycerides, the linolin and any small quantities of even less stability, are destroyed or decreased, and the stable liquid olein is retained and more or less increased.

So much from petitioner's own standpoint in treating cottonseed oil as merely a mixture of stearin, olein and linolin and neglecting in its analysis all those chemical components which are present in small quantities but which differentiate cottonseed oil from other oils and which may be of very grave importance when the patented product is considered as a food product. The hydrogenation also brings about many changes in those components and furnishes a product from that standpoint entirely different from the mixtures of cottonseed oil and additional stearin.

Let us take an illustration from the hydrogenation of another oil and apply the reasoning of counsel for petitioner as to sameness of semi-solid products obtained by mechanical mixing and by hydrogenation.

In the article on the Reduction of Fats by Paal and Roth, beginning at page 605 of the Record, is an account of the effect of hydrogenation on Croton Oil.

It appears that this oil, which consists of a large number of different glycerides, is a very violent and irritating poison.

Upon treatment with hydrogen, however, it was changed into a reddish brown tallow, melting at 48 degrees C. (Rec. p. 610).

The physiological action of this was tested and it was found that the poisonous character of the oil had to a very great extent disappeared and that upon complete hydrogeneration the physiological effects characteristic of the oil had entirely disappeared.

It is evident, therefore, that if we had rendered this oil semi-solid by mixing 90 per cent. of the original oil with 10 per cent. of the hydrogenized

hard oil we would still have a violent poison, as 90 per cent. of the original oil would remain in the mixture, while if we obtained the same semi-solid consistency by hydrogenation we practically destroy the poisonous character of the oil. Yet applying the reasoning of counsel for petitioner, these two croton oil products would be the same.

The Vegetable Compound Not a Prior Art Product as Shown by the Rise and Progress of the Burchenal Inventions.

Mr. Burchenal was General Manager of the Procter & Gamble Company (Rec. p. 3). He was not a chemist and was interested only in this subject from an industrial standpoint. The chemical analysis of the products of the Company was a matter of no practical interest, since it was not involved either in the manufacture or consumption of the goods. Procter & Gamble were soap manufacturers, being the producers of the well known "Ivory" soap, and prior to 1908 had not undertaken the manufacture of any food product; nor, prior to 1908, had they used any hydrogenized fat in the manufacture of soap.

Joseph Crossfield & Sons were manufacturers of soap, in Warrington, England, but they had, prior to 1908, experimented with the use of hydrogenized fat for soap (p. 27, Q. 319).

On October 18th, 1907, Kayser, a former employee of Crossfield, wrote to Procter & Gamble as follows (Rec. p. 130), emphasis ours:

"In a few weeks' time I shall be en route to the "States, when I purpose introducing a new process "of the **greatest possible importance to**

"**soap manufacturers.** I have manipulated "this process for the last three years, and am the "only person thoroughly acquainted therewith. "Kindly inform me by the earliest mail if you wish "me to call upon you in the first instance, and if in "that case you are agreeable to refund railway fares "from New York or other port to your City."

Mr. Burchenal, as Manager of Procter & Gamble, replied, on October 28, 1907, as follows (Rec. p. 130):

"As we have no idea in regard to the process, "we cannot, of course, say anything concerning its "value to us. We will, however, be very glad to "have you talk the matter over with us and if the "process is valuable, we will be pleased to consider "a proposition from you regarding the same."

Kayser brought with him from abroad a sample of his soap product, which he showed to Mr. Burchenal on his arrival. It was "a very hard material, had a very high melting point" (Rec. pp. 6 and 24).

Burchenal appears to have been the first who even thought of using this material for the making of a food product in any way. Its appearance repelled any such idea, because of its hardness, and "unpleasant taste" (p. 24, Qs. 275 to 282; p. 83, Q. 32; p. 228, Q. 23; p. 250, Q. 24). It had "a good deal "the appearance of a piece of porcelain or china" (p. 19). When the idea occurred to Burchenal he asked Kayser if he thought it would do for edibles, and Kayser replied "he thought not" (p. 24), "that it was not suitable for a food product" (pp. 46 and 144), that it was to be "used for soap-making purposes" (p. 24). Burchenal testifies (p. 144): "I "made up my mind that I would endeavor to ascer- "tain if it was edible. I went into the thing, I examined the material, we worked on that."

A preliminary contract was entered into December 5, 1907, in which the product was designated as "hardened" (p. 157), and Burchenal authorized Kayser to construct an experimental apparatus at the factory of Procter & Gamble for producing this "hard" material. The hydrogenizing vessel of this experimental apparatus was only about 2 feet long and 1 foot in diameter (p. 55), and its capacity was only about 20 pounds (pp. 13, 26, 36). This was the only apparatus they had in 1908 (p. 36), and it was first used for experiment in January or February, 1908 (p. 9). In the use of this apparatus the object was to harden or saturate the oil as much as possible (pp. 11, 15, 16, 25, 27, 48, 71). In order to be considered "a successful operation" the product had to be hard or saturated (p. 16).

The product made in this 1908 apparatus was like Plaintiff's Exhibit, Sample Hard Stock (p. 79). It was used for making soap (p. 113), and outside of that the only use of it attempted was for experimenting under Burchenal's direction toward the invention of "compounds" consisting of mixtures of this hard substance with cottonseed oil and more or less beef tallow (p. 89, Q. 108; p. 109, Q. 148). For both these purposes (the soap and the "compound") the titre of the hydrogenized oil was from 58 to 60 (p. 169, Qs. 401-2) and the melting point would be nearly the same, which means that the substance was very hard and its hydrogenation substantially complete. Part of these compounding experiments were conducted at the factory of the McCaw Manufacturing Company at Macon, Georgia, which had already been making compounds of cottonseed oil with beef tallow, and was, therefore,

equipped with the proper machinery. These experiments extended through the year 1908 before a merchantable compound of the hard, hydrogenized material was arrived at, and are fully set forth in the testimony of McCaw (p. 218 *et seq.*).

Having, as the result of nearly a year's experimenting, finally arrived at a satisfactory "compound", a commercial apparatus having a capacity of about 3,000 pounds of the hard, hydrogenized material, was installed at the Procter & Gamble factory and started in operation February 15, 1909 (p. 36), for manufacturing the hard material to be used in producing the compound which was sold under the name "Flake White", which has continued on the market ever since about April, 1909 (p. 90, Q. 112).

This "compound" was a new article, conceived by Burchenal, and is the subject of the companion patent to the one in suit, applied for and issued to Procter & Gamble on the same day, and contemporaneously pending in the Patent Office (p. 582), and is referred to in the cross reference in the patent in suit, just preceding the claims. As made up to 1910 it contained 9 per cent. of beef tallow and only about 3 per cent. of hard hydrogenized oil to 88 per cent. of liquid cottonseed oil (p. 178, Q. 215). Afterwards the beef tallow was omitted.

Nothing but the hard, saturated substance and its compound was thought of, used or produced, or intended to be produced, until October or November, 1909, when Burchenal conceived of the invention of the patent here in suit and produced the product in an experimental way in small quantities (pp. 502, 547; p. 73, Q. 817). He produced it in considerable quantities prior to July, 1910 (p.

49, Qs. 539, 546). Burchenal says (Q. 549) that he "made a great many experiments, covered the "whole field from beginning to end, the whole field "of its production and sale". This is corroborated by Procter (p. 137, Q. 91).

It was introduced on the market under the trade-mark "Crisco" in April, 1911 (p. 276). They sold in the first six months up to 2,600,000 pounds. It has had a surprising increase in sales ever since.

The patent in suit was applied for in November, 1910, and, therefore, about a year after the first experimental production of the Crisco product, and about six months before it was introduced on the market.

To Whom the Credit is Due.

It certainly is not due to the prior art.

To the Procter & Gamble Company, and it alone, is due the entire credit for having conceived of, perfected and introduced hydrogenized vegetable oil as a food product, or any part of a food product. In Flake White they originated it as part of a compound. In Crisco they originated it as a homogeneous unitary product.

As appears from the above review of the testimony, prior to Procter & Gamble's entry upon the field, hydrogenized vegetable oil had been known only as a chemical curiosity, having no industrial application excepting in one instance, and that was the experimentation of the soap manufacturers, Joseph Crossfield & Sons, of Warrington, England, for utilizing it in the manufacture of soap.

When hydrogenized vegetable oil was first brought to the attention of Procter & Gamble, it was presented to them in Kayser's letter from England as of "importance to soap manufacturers", and evidently it was presented to them because of their reputation as the manufacturers of "Ivory" soap.

Theretofore they had never undertaken the manufacture of any food product.

The Procter & Gamble Company, of course, worked through its employees and it attributed to Mr. Burchenal, its general superintendent, all of the ideas relating to the development of the hydrogenized oil as food products by taking out the patents in his name.

Not merely was the subject presented to them at the outset as of "importance to soap manufacturers" only (p. 130) requiring "hard fat" (p. 37, Q. 423; p. 447, Qs. 350-2) of "about 58 titre" (p. 169, Q. 400). But the sample of the substance brought to them from Crossfield was "very hard—a good "deal the appearance of a piece of porcelain or "china" (p. 19, Q. 213), and the material seen at Crossfield's was "hard" (p. 27, Q. 318). Its appearance repelled the idea of edibility not merely because of its hardness but also because of its "unpleasant taste" (p. 24, Qs. 275, 282; p. 83, Q. 32; p. 228, Q. 23; p. 250, Q. 24).

Cottonseed oil, for many years, had been used in limited quantities in cooking, but its liquidity prevented its being handled like lard, and it produced inferior bread (p. 499), and was prone to become rancid (patent, p. 1, lines 25 to 35). The beef fat, oleo stearin, for making lard compounds was subject to Government Inspection and was under the control of the packers just as in the case of hog lard. The need, therefore, had been felt of just such a vegetable product as Procter & Gamble subsequently succeeded in producing; but it never had been produced and the possibility of utilizing hydrogenized vegetable oil in its production had never occurred to any one, undoubtedly because of

the repulsively hard appearance and odor of that substance.

Having conceived of the possibilities of the hydrogenized oil, in the direction of food products, Procter & Gamble bent its energies and resources for two years, from 1908 to 1910, before it succeeded in transforming this hard substance by admixture into a food product sufficiently satisfactory to be placed on the market—namely, the first form, known commercially as "Flake White". Thereafter it was still another year before they succeeded in developing and placing upon the market the second form, which has won such success under the name "Crisco", being the form here in controversy.

The Circuit Court of Appeals has well said (p. 775): "The problem seems easy now, but when "the object reached was desirable, useful and "apt for commercial success, the bald fact that "nobody ever did it before is persuasive, though not "conclusive evidence of some invention. Burch-"enal's imitation lard has these attributes, and we "consider it a sufficient answer to the statement "that any oil chemist could have done the thing, "to know that no oil chemist did do it during the "more than score of years prior to Burchenal's ap-"plication when cottonseed oil (especially) as an "abundant American product was endeavoring to "supplant lard in the American market."

This decision is exactly in line with repeated decisions of this Court. *Loom Co.* v. *Higgins,* 105 U. S. 580, 591:

"But it is plain from the evidence and from the "very fact that it was not sooner adopted and used, "that it did not, for years, occur in this light to "even the most skillful persons. It may have been

"under their very eyes, they may almost be said "to have stumbled over it; but they certainly failed "to see it, to estimate its value, and to bring it into "notice. *Who was the first to see it,* to understand "its value, to give it shape and form, to bring it "into notice and urge its adoption, is a question to "which we shall shortly give our attention. * * * "Now that it has succeeded, it may seem very plain "to anyone that he could have done it as well. "This is often the case with inventions of the "greatest merit."

The above language of this Court applies absolutely to the achievement of Procter & Gamble. They were absolutely "the first to see" that hydrogenized oil had any food possibilities. They were the first "to understand its value, to give it shape "and form, to bring it into notice and urge its "adoption", and the outcome has been the presentation to the world of not only one but two food products, the immediate popularity of which, as evidenced by sales, demonstrates the need which they filled.

The longer the desirability of a product exists prior to its production, and the greater the number of people who would have profited by its earlier production, the stronger the presumption in favor of invention.

Measured by this universal rule of law, the presumption in favor of invention is here of the *very strongest,* as the following considerations will show.

The art of cooking foods is of the very oldest, and the number of individuals benefited by any improvement in that art has included practically every one since the beginning of civilization. It seems remarkable that it should have remained until this late day to have produced any new cook-

ing food. So remarkable indeed that it goes almost without saying that the production of a new cooking food must have involved invention.

Even defendant's booklet circular states as follows (p. 512):

"No wonder that students of the new pure food "science have for many years been seeking to obtain, "for use in cooking, a pure, wholesome and deli- "cately flavored form of vegetable shortening. The "result is needed on the score of economy because "the animal oils are costly. It is far more neces- "sary, however, on the score of purity and whole- "someness. This problem has been completely "solved by the discovery of Kream Krisp."

Specifically in the art of vegetable oil cooking foods, the use of cotton-seed oil as shortening extends far back almost to the time when the oil itself was first produced, and its disadvantages were not merely known but were felt broadcast.

These disadvantages were met, in a measure, by mixing the cotton-seed oil with hard animal fat, and such mixtures or compounds were used for years back, and by multitudes of people, with their attendant disadvantages already pointed out.

The Sears English patent 10,783 of 1887 shows that this beef tallow mixture idea existed for over 20 years before Burchenal in 1909 conceived of the partially hydrogenized idea, and the evidence is that during those 20 years the beef tallow mixture idea was the only idea entertained in the lard-like art. It took 20 years before the incompletely hydrogenized food idea occurred to any one, and then it was immediately recognized as a better idea. No better demonstration of the necessity of invention could be had than this.

To this plaintiff, and its inventor Burchenal,

belongs the credit of having first substituted hard vegetable fat for the hard animal fat in the cotton-seed oil compound, and introducing this new compound or mixture, under the trade-mark "Flake White", to the public under its compound patent No. 1,135,935, which is in suit in Chicago against Swift & Company, but is not here in issue. The record shows that this compound of patent 1,135,-935 was conceived of and invented by Burchenal in the latter part of 1907, and early part of 1908, that the problem of manufacturing it with sufficient perfection for commercial introduction was a very difficult one, involving all the resources of the plaintiff company, and its associates, and commencing early in 1908. Yet, notwithstanding all this, the incompletely hydrogenized idea of the invention of the patent here in suit never occurred to any one until it occurred to Burchenal in the Fall of 1909, nearly two years later.

If this had been an obvious idea the above history would inevitably have been different; it would have occurred to Burchenal before his conception of the compound. It would have occurred to some one of the employees of the plaintiff or its associates who, during the year 1908, were working upon the problem of manufacturing the compound in a satisfactory manner. It would even have occurred to those who, prior to Burchenal's invention of the compound, had been manufacturing the compounds of cotton-seed oil with hard animal fat, extending for years back. The fact that it did not occur to any of these, but was reserved until the year 1909, after all of the above events had taken place, proves conclusively that the idea upon which the patent in suit is based was not obvious and did require invention.

The idea of semi-solid or incompletely hydrogenized vegetable oil as a body useful in any art or in any way or for any purpose whatsoever had never been conceived before Burchenal.

It was a totally and radically new idea of means. It is the idea upon which the claims in suit are based. It is an idea which has greatly enriched the sum of human knowledge in the most important of all arts.

The Statement on page 122 of petitioner's brief that as soon as respondent had completed its new hydrogenizing plant it began to make the patented product is not in accordance with the facts of record. The commercial plant for making hard, hydrogenized cottonseed oil was put in operation in February, 1909 (Anderson, Q. 80, Rec. p. 105). Flake White was then made at Macon, Georgia, until April, 1910, when Flake White was first made at Ivorydale (Anderson, A. 139, Rec. p. 109). It was not until April, 1911, that Crisco of the patent in suit was placed on the market (Taylor, Q. 11, Rec. p. 276).

Counsel then assert that the respondent took up the manufacture of Crisco because it was no longer profitable to completely hydrogenate only a small percentage of the output. This is quite a remarkable statement when we consider that Flake White had long been on the market (McCaw, Rec. p. 99), and further consider that it costs three or four times as much to manufacture Crisco as Flake White. In order to hydrogenate either completely or incompletely the same plant has to be established; all the expensive apparatus, tanks, retorts, machinery for manufacture of hydrogen and catalyst must be furnished, the overhead and upkeep is the same, the same labor cost, and the same finishing and packing cost. The only difference is the amount of

hydrogen used in completely or incompletely hydrogenating, and that, it is obvious, is practically negligible. The cost of completely hydrogenizing 10,000 pounds of oil is substantially the same as the cost of incompletely hydrogenizing. Obviously, therefore, if one product contains only from 10 to 15 per cent. of hydrogenated oil, the manufacturing cost of Crisco is many times that of Flake White.

It might be pertinent to inquire in this same connection why any competitor would wish to manufacture the patented product unless it was a different product and vastly superior in its qualities over the lard compounds that can be made without infringement by mixing.

The Incompletely Hydrogenized Product is Distinguishable as a Product, Irrespective of the Process, from the Compound of the Burchenal Companion Patent.

We have already shown how it is distinguished from the compound by the substantial absence of cottonseed oil and the change in the relative proportions between the olein and linolin and lesser saturated glycerides. We will now take up the distinction implied by the word "homogeneous".

The product of the patent consists of single substance (cottonseed oil) chemically changed throughout and therefore homogeneous. The prior art consisted of two respectively unchanged substances (cottonseed oil and stearin) compounded and therefore not homogeneous.

The word "homogeneous" was introduced by the applicant and accepted by the Patent Office as distinctive between these two products. This appears

from a consideration of the file wrapper and contents of the patent in suit.

After the two applications had been co-pending from November 10, 1910, until May 27, 1913, the companion application was put in interference and, by letter of May 27, 1913, the Patent Office called attention to the fact that the claims then standing in the application for the patent in suit were not distinctive against the issue of the interference, and that action upon the application for the patent in suit would be "suspended until the termination "of the interference" (Rec. p. 554).

The interference of the companion application continued until January 22, 1915 (Rec. p. 555), being decided in favor of Burchenal, and the next amendment in the application for patent in suit, dated March 6, 1915, introduced the word "homogeneous" into the claims and into the statement of invention of the specification, and cancelled the previous claims 1 and 2, which the Patent Office had held were not distinguishable against the companion application. Accompanying the introduction of "homogeneous", applicant's letter of March 6, 1915, said (p. 558): "The generic "claims 1 and 2 have been cancelled for the reason "that they have been transferred to applicant's co-"pending application Serial No. 591,727, filed No-"vember 10, 1910".

It is evident, therefore, as above stated, that "homogeneous" was introduced by applicant and accepted by the Patent Office as sufficiently distinguishing the product of the patent in suit from the "compounds" of the companion application—namely, the mechanical compounds of hard, hydrogenized cottonseed oil with liquid cottonseed oil.

The fact that, with the two applications co-pend-

ing before it for four years and one-half, during two of which years an interference was pending with another applicant, and that thereupon the Patent Office granted separate patents for these two products—namely, the "compound" and the "homogeneous"—and that it accepted the word "homogeneous" as distinctive between them, raises an exceedingly strong presumption not only that they are distinguishable but that they are properly distinguished by the word "homogeneous".

Moreover in the last paragraph of the specification preceding the "homogeneous" claims, the compound of the companion application is disclaimed.

This presumption is not overcome by the present record, but, on the contrary, is supported thereby.

Neither defendant's witness Walker nor Richter nor any other witness has said that any "compound" is the same as the incompletely hydrogenized product of either the patent in suit or of defendant. On the contrary, defendant assumed the responsibility of the testimony that they are not the same and that the word "homogeneous" distinguishes between them. Mr. Burchenal was defendant's first witness and in a responsive answer to a direct question by defendant's counsel, he said:

> "Q. 351. In order that we may be at one in our understanding, I will ask you to explain what you mean by 'homogeneous' in reference to a hydrogenized product. A. My understanding of 'homogeneous' is that it is similar throughout; that is, that it would be different from the ordinary compound which is made of hard and soft material".

After the introduction of this testimony, we do not find that defendant put any other witness on the stand to compare the "compound" with the

incompletely hydrogenized product either of the patent or of defendant, but let the above testimony stand as its testimony in the case.

The Circuit Court of Appeals rightfully treated it as a characteristic of the chemical product in contradistinction to the mechanical product made by mixing, saying (Rec. p. 778): "Homogeneous in the sense of mixtureless, and wholly consisting of an incompletely hydrogenized cottonseed oil".

At the commencement of the hearing, plaintiff's expert defined the word "homogeneous" as physically uniform throughout, and this definition was never questioned in the testimony (Rec. p. 267, x-Q. 38).

> "x-Q. 38. What is your understanding of the word 'homogeneous' as used in your testimony. A. Uniform throughout.
> x-Q. 39. Do you mean chemically uniform. A. I would say more physically uniform."

Plaintiff's expert also testified (p. 265, Q. 11) that he had examined defendant's product to determine whether or not it is homogenous, and that it appeared to be so. No witnesses for the defendant denied in terms that the defendant's product is homogeneous.

It is significant that none of the judges below adopted the view now presented to this Court, that defendant's product contains unconverted cottonseed oil. Neither the dissenting opinion of Judge Ward nor the opinion of the District Judge is based upon any such supposition. In neither of these opinions is there any question of the fact held by the prevailing opinion, that the products are "homogeneous", in contradistinction to the mixed compounds containing from 80 to 90 per cent. of unconverted cottonseed oil.

Large Manufacturers and the Public Recognize the Difference Between the Patented Product and Lard Compounds.

Up to the time of the Burchenal invention of the patent in suit the culinary fats in most general use were either hog lard on the one hand or the substitute for animal lard on the other known generally as "lard compound", made up of mixtures of cottonseed oil and hard beef stearin in the proportion of about 85 per cent. of the oil to 15 per cent. of the beef stearin, although, of course, in a limited way liquid cooking oils of various kinds and hard tallows had been used for many years. These cooking fats, oil and hard tallow, do not fall within the class of the lard like product in issue and we do not understand that there has been any claim made that they have any particular bearing. They are difficult to use properly and cannot be used for all purposes generally as has been explained by the witness, Miss Hanko (p. 497), and they may be disregarded.

When we compare, therefore, the patented product with the lard compound or mixtures we find that the manufacturers and public also readily distinguish between the two products.

Mr. William H. Richardson, chief chemist of Swift and Company and a practical expert, who testified for the petitioner, makes this clear when he testified that Swift and Company manufactured and sold millions of pounds per year of lard substitute made from hardened cottonseed oil, either with oleo-stearin or hydrogenized hard oil (Rec. p. 349).

When asked whether they had ever made a product like an exhibit that was pointed to, which

was the product Crisco, made under the present patent, the witness stated:

> "No, we do not make such a product; we simply use the hard hydrogenized product similar to this as a substitute for the oleo-stearin. That is mixed with the oil, of course, from ten to fifteen per cent."
>
> By Mr. Gifford:
>
> "x-Q. You did not make any lard substitute like 'Crisco' consisting entirely of hydrogenized product?
>
> A. No; we do not make such a product" (Rec. p. 352).

This frank statement of Richardson's is of great significance when we consider that the contention of the petitioner is that the Swift and Company product Jewel lard compound, and the Procter and Gamble product Crisco of the patent in suit, are the same products and that the sole difference between them is the process by which they are made.

Richardson did not say that Swift and Company made their product to the extent of from 250,000,000 to 500,000,000 per annum in a different way from that of the patented product. He said (p. 352): "No, we do not make such a product." He admitted (Ans. 78) that they simply mix the hydrogenized hard oil with 85 to 90 per cent. of the cottonseed oil. Could we have a more complete refutation of the basic doctrine upon which the petitioner relies than these few simple statements made as a matter of course, without the slightest hesitation or question by the best qualified leading expert of one of the foremost great packing industries of the country?

Mr. Procter, President of the plaintiff Company, also says (Rec. p. 137, Q. 86): "We never grouped Crisco in the lard substitutes."

No Attempt to Deprive Public of Vested Rights.

The testimony of Mr. Richardson brings us to a consideration of the claim in respondent's brief, page 38, that the patent in suit deprives the public of its rights to use the process of hydrogenation in the preparation of its cooking fats.

To establish any basis for such a claim it is in the first place necessary for the defense to bring in the companion patent to Burchenal not involved in this litigation. It is a remarkable contention, to say the least, that a charge of monopolizing an industry should be brought into a suit for infringement of one patent by gathering together the other patents of the art not in suit and then to contend that the ownership of all of the patents would give a monopoly.

The discovery of Burchenal, however, that hard hydrogenized cotton oil could be used to render cottonseed oil lard-like by adding a small per cent. to the oil as a substitute for the animal fat, was a discovery which destroyed a monopoly and opened up the field instead of restricting it. **It greatly enlarged the public resources.**

Up to this time the enormous industry of lard and lard compounds, which amounted to 1,173,446,000 pounds of lard substitutes and 873,798,000 of hog lard for the year 1917 as given by the *amicus curiæ*, The American Cotton Oil Company, in its memorandum in support of the petition of writ of *certiorari*, the entire industry was practically under the control of the great packing industry of the United States. They controlled the output and price of hog lard, and through their control of the output and price of oleo-stearin (beef fat)

they also had under complete control the allied industry of lard substitutes. Burchenal's inventions for the first time brought into competition with the packers a great soap manufacturer.

The discovery of a vegetable fat that could be substituted for oleo-stearin was of the greatest benefit to mankind, and demonstrates the justice and fairness of rewarding the discoverer for a limited term of years under the patent laws.

The subsequent discovery of Burchenal that the detrimental characteristics of these lard substitutes could be largely removed and his production of a new product in which the linolin and other unstable constituents were decreased or removed altogether, without decreasing the stable olein but somewhat increasing it, in no way attacked the vested rights of the public or restricted the field, it only opened up further lines of development.

Moreover the amount of the patented product that the respondent has been able to sell even under a very large advertising campaign, as shown by Mr. Taylor's testimony, for the year 1916 was approximately 60,000,000 pounds (Rec. p. 277). Under the figures given as to the amount of cottonseed oil used for 1917, 1,069,214,000 pounds, the amount of Crisco sold would only be in the neighborhood of 6 per cent. of the total cottonseed oil used. Mr. Taylor shows that beginning with December 31, 1913, and extending up to December 31, 1916, plaintiff's manufacture of Crisco rose from 24,000,000 to 60,000,000 pounds (Rec. p. 277). The testimony does not give the figures for 1917, but assuming a natural increase, the relation of the amount of cottonseed oil used for the manufacture of the patented product to the amount used for the manufac-

ture of lard substitutes generally would be, as we have stated, in the neighborhood of 6 per cent. This fact shows that there is no foundation for the apprehension expressed by petitioner as to the encroachment upon the vested rights of the public by the patent in suit. It is apparent that neither the users of lard products nor the growers of cotton, peanuts and other oil producing vegetable products, nor the manufacturers of cooking fats therefrom are in any way injuriously affected by the monopoly granted by the patent in suit. Respondent, so far from restricting the free use of vegetable oils for edible purposes or in any way interfering with the free manufacture or sale of lard substitutes, simply opened up another outlet for the use of such oils and gave the public another article of food. Mr. Richardson's testimony shows how little effect the patent has on the Swift and Company industry (Rec. p. 346):

> "Q. 14. To what extent does Swift & Company produce lard substitutes, combining cottonseed oil and a hard fat in the relation you specified?
>
> A. I have not made any close estimates; I could just give you a rough figure. Say, five million pounds a week; five or ten million pounds a week; something like that.
>
> Q. That would be from, say, 250 millions to 500 millions pounds a year?
>
> A. It would be something like that; that is speaking offhand without looking up the record."

Then, so far as is shown in this Record, the Respondent and the Berlin Mills Company are the only concerns in any way interested in the issues for the reason that the petitioner is the only Company that is infringing the patent in suit.

The Patent File.

Under the heading "The Patent and Its History in the Patent Office", the brief for petitioner (p. 77) asserts that the patent as amended and issued differs substantially from the original specification by reason of the amendment made November 20, 1912, in which amendment the specific claims 5 to 7 were added, and it follows this with an assertion that claims 1 and 2 in suit must be limited to the specific percentages of components set forth in claims 5 to 7, for the reason that, in view of rejections in the Patent Office, the term "lard-like" was inserted in claims 1 and 2, to mean chemically lard-like in the preferred percentages of linolin and olein.

A consideration of the file as found in the record (pp. 532-559) will demonstrate how unfounded is this contention.

The original claim was as follows (Rec. p. 534):

> "A food product, consisting of an incompletely hydrogenized vegetable oil, said product being a semi-solid having a melting point ranging from 36° to 43° C."

Before any action was had, on November 25, 1910 (Rec. p. 538), a third claim was added:

> "A semi-solid hydrogenized oil."

These claims were first rejected December 12, 1910 (Rec. p. 539), on the Normann and Schwoerer and Erdmann patents.

This rejection was argued, original claims 1 and 2 retained and claim 3 cancelled, and a reconsideration was requested (Rec. 540).

The Examiner again rejected the claims, Decem-

ber 29, 1911, adding the Kayser patents, which had just been issued, as references (Rec. p. 542).

About a year later, November 20, 1912 (Rec. p. 543), the amendment was made which amplified the specifications to support the specific claims 5 to 7, which were then presented. The original claims were still retained.

Prior to this date the Patent Office had issued a patent to Carlton Ellis, No. 1,038,545, September 17, 1912, which contained the following claims 7 and 8 (Rec. p. 580):

> "7. A butter-like composition comprising edible hydrogenized fatty oil."
> "8. A butter-like composition comprising edible hydrogenized vegetable oil."

Applicant, to bring on an interference in the customary way, inserted these claims, as 1 and 2, also in this amendment of November 20, 1912, and asked for an allowance and a declaration of interference with said patent.

These claims were not inserted because of any rejection. The original claims, now numbered 3 and 4, were still retained.

In the reply of the Office to this application for the allowance of the two Ellis claims, the Examiner contended that Burchenal was not entitled to characterize his food product as "butter-like"; that this phrase had a much more definite meaning in the Ellis patent than merely having the consistency of butter; that applicant's product was a lard substitute.

The Examiner said (Rec. p. 547):

> "The expression butterlike has a much more definite meaning in the Ellis patent than applicant is giving it. It means that the product is like butter, not merely that it has the con-

sistency of butter. The title of Ellis patent refers to it as a 'butter substitute'. That is something different from a lard substitute which applicant's compound is.

"It is true that butter is used in cooking like lard is, but that does not make lard a butter substitute since the usual and principal use of butter is as a table food, a use to which lard is not put." * * *

"The term 'butter-like' in the claims of the Ellis patent is a definite term, open apparently to no criticism as to meaning; and clearly not ambiguous or indefinite in the least degree when read in connection with the specification of the patent. They can mean but one thing, that the compound is like butter, can be used as butter can, is a butter substitute, which applicant's product is not, and since applicant cannot, therefore, use the words in the same sense as they are used in the Ellis patent, he cannot make the claims and get an interference therewith" (Rec. p. 548).

In view of this letter, on January 9, 1913 (Rec. p. 550), the applicant changed the word "butter-like" to "lard-like" wherever it appeared in the specifications prior to that time.

This is the way that the term "lard-like" came into the specifications and the claims in issue.

It is perfectly clear from this examination of the file that "lard-like" as applied to the patented product has exactly the same meaning as "butter-like" applied to the Ellis product—that is, that the patented product is like lard, can be used as lard can, is a lard substitute, and not that it has the chemical composition of lard.

Miss Hanko, a graduate of Pratt Institute, and a demonstrator and lecturer for housewives and students in a modern school of cookery, makes very clear the difference between a lard-like cooking fat

and an oil or a hard hydrogenized material (Rec. p. 496).

It is very essential in ordinary cooking that the steam from water or milk shall help to leaven the batter and puff it up and if oil is used you cannot use sufficient water. In addition to that, oil is harder to mix and it is very apt to stay in spots and make a soggy spot. Then in the thousands of recipes for the housewife the amount of flour and other things to be used in the mixture is all calculated with reference to the use of lard or the lard substitutes. All of these recipes would have to be thrown away or readjusted.

Now if hard fat is used it is hard to scoop up and get out of dishes that it might be in and it is hard also to manipulate the fat in such a way that you would have a perfect combination of fat with the flour. For frying also with a hard fat a white deposit would be left upon the material fried.

In view of this history of the adoption of "lard-like" in the claims it is obvious that the phrase was not inserted to limit claims 1 and 2 to the glycerid percentages of lard but merely to distinguish from "butter like" of the Ellis patent.

The claims were not presented to overcome any rejection on the part of the Patent Office and there is no justification for petitioner's contention.

These claims are the direct result of the allowance of the Ellis patent with similar claims amended to confine the product to a substitute for lard and further to distinguish the invention from Burchenal's companion application.

There were no restrictions or limitations inserted in the specifications in order to obtain a patent. The amendment of November 20, 1912 (Rec. p. 543) was made, not to overcome a rejection, but to fur-

nish a foundation in the specification for the specific claims 5-7.

Both the Examiner and the applicant so stated. The Examiner said:

> "It is noted that applicant has inserted on page 2 in line 7 a paragraph stating the alleged composition of his product and that claims 5, 6 and 7 are based thereon" (Rec. p. 549).

Applicant referred to the percentages as "The chemical composition set forth in claims 5, 6 and 7".

There is nothing whatsoever to indicate that claims 1 and 2 were predicated on these percentages and, of course, the fact that claims 5, 6 and 7 on percentages were presented while applicant was insisting on claims 1 and 2, in which no percentages are expressed, is conclusive of the fact that claims 1 and 2 were not intended to be limited to percentages.

In the same letter, December 6th, 1912, in which the Examiner refused to allow the term "butter like" as applied to the Burchenal product, the Examiner also again rejected the original claims 1 and 2 which had then become 3 and 4, upon the Kayser patent.

In the letter of the applicant in reply dated January 9, 1913, Record, page 550, applicant insisted that the product claims 3 and 4, original 1 and 2, were not anticipated by the references cited which did not describe a lard like food product and in the same letter the applicant said that he would file a supplemental oath to cover the chemical composition set forth in claims 5-7.

In reply to this letter the Examiner under date of February 15, 1913, said (Rec. p. 551):

> "The supplemental oath which applicant states will be filed if desired should be filed. Otherwise the case appears to be allowable."

The case was then held up from May 27th, 1913, until January 22, 1915, by reason of the interference between Burchenal's companion application and the Ellis patent.

The interference having been decided in favor of Burchenal under date of March 5, 1915 (Rec. p. 556), the applicant in order to place the original claims 1 to 4 in better condition for allowance cancelled the original claims and substituted the claims 1 to 4 that are now found in the patent as issued.

The case was then allowed March 16, 1915.

The Court of Appeals was, therefore, correct in its finding (Rec. p. 778):

> "In our opinion never at any time did the applicant acquiesce in the examiner's action, but consistently endeavored to obtain, and finally did obtain in the claims first above quoted, what he had in the first place asked for.
>
> It is the acquiescence of an applicant and not the action of an examiner or of many examiners that surrenders to the public what the applicant first declares to be patentable invention. The very word 'acquiescence' necessarily implies obedient action, perhaps enforced, but still submission on the petitioner's part. Here there never was any such acquiescence, and the patent as issued substantially contains in the claims in suit the originally propounded definition of invention."

Law of Product or Process.

Under the heading of novelty and patentability, the brief for petitioner cites a number of cases of this Court in which it has been held that a claim of a patent cannot cover both a product and a process, that product and process are different things and that if the product is old, it cannot be patented, although the process by which it is made may be both new and patentable. It is not necessary in this case to dispute with Counsel on the law. Their error is in the application of the law to the facts. The law cited by counsel has no application whatever to the facts of this case.

The claims in issue are claims for product and not for process. The phrase "incompletely hydrogenized" means containing components or glycerides, in which the atoms of hydrogen have only in part disrupted the double bonds of the carbon, the extent to which this union of the hydrogen has taken place being defined by the term lard-like or semi-solid, meaning adapted for the same purposes and to be used in the same way that lard is used. It is entirely immaterial by what method the hydrogen may be caused to unite with the carbon, whether electrically or by catalytic methods as in Kayser, or by the use of formaldehyde as in Knorre (Rec. p. 663). The phrase in the claims in issue defines a **static** condition, not a method by which the condition is obtained. As the Court of Appeals said in its decision on rehearing (p. 803) "one vegetable oil in *a state* of arrested hydrogenation".

In *Merrill* vs. *Yeomans*, 94 U. S. 568, the oil was defined as produced by treating in a certain specified way, not as in a certain static condition. The claim was naturally held to be a claim for a

process. Also in the *Wood Paper* case, 23 Wallace 566, the claim was for a new article made from wood by boiling in an alkali under pressure. This Court in that case treated the claim as a product claim, as the Court of Appeals did in the instant case, but this Court in the Wood Pulp case found that the pulp for paper was old, that the substance of the products of the patent and the prior art was the same and that therefore the claim for the product was invalid.

If the vegetable fat of the patent in suit was old then the claims are invalid, but we submit that we have established that the product was not old, and therefore the claims in issue should be sustained.

In the *Alizarine* case, 111 U. S. 293, this Court found that the dye was old and therefore the claim for the product was invalid, although the process by which the dye was produced was new and patentable.

In the cases cited in petitioner's brief in which food product patents were held invalid, *Cercaline* vs. *Bates*, 101 Fed. 272, had to do with a patent for uncooked flakes of corn; *Sanitas* vs. *Voigt*, 139 Fed. 551, with cooked flakes of wheat; *Maryland Co.* vs. *Dorr*, 46 Fed. 773, with a preparation of Indian corn. In each of these cases, the product was a cooked or uncooked article of food. No change of the constituents of the grain was obtained, no new properties were created. The grain, whether cooked or uncooked, remained the same, the form alone was changed. In each case validity of the patent was denied for these reasons.

In the instant case, however, the cottonseed oil is changed chemically. The unstable linolin and glycerides of lesser saturation are in part removed and converted into more stable material, their proportions are changed relatively to the stable olein

which is more or less increased, new properties are developed, which are set forth in the patent, the product does not remain cottonseed oil in whole or in part.

The cases cited are irrelevant to the present issue.

The Circuit Court of Appeals' Opinion.

Petitioner's brief is entirely in error in assuming that the Circuit Court of Appeals' opinion held that the product was old and that the sole novelty resided in the process. In support of this erroneous interpretation of the opinion, petitioner's brief quotes certain sentences therefrom out of their context, in which the Court was manifestly stating the position of defendant instead of deciding the facts.

Repeated statements in the opinion that the product was new, make the error of petitioner's brief manifest.

Thus, at the outset, after quoting from the patent, the opinion says (p. 774)—emphasis ours:

"This is a description of a **visible, tangible "thing** which for some years has been manufac- "tured and sold by plaintiff; as to which there is **"no evidence that anybody else ever "made it before,** or that if this product is en- "titled to patent protection, there is any closely "related prior art."

Again, on page 775, the Court says: "When the **"object reached** was desirable, useful and apt "for commercial success, the bald fact that **"nobody ever did it before** is persuasive, "though not conclusive, evidence of some invention. "Burchenal's imitation lard has these attributes. "* * * The chemical composition of steam, water

"and ice is the same, but they are different things, "and in the same commonsense way, oil, lard and "stearin are different things".

In the opinion denying the motion for rehearing, the Court again clearly held the product to be new, saying (p. 802): "It seems to be now assumed that "hydrogenized oil, as a substitute for lard, **is so "superior** to an amalgam, combination or mix- "ture, of oil and animal fat, or oil and stearin arti- "ficially produced—that the patent in suit is almost "basic. * * * Our decision is, and has been based "on the firm conviction, that what is practically "lard, consisting solely of one vegetable oil is a state "of arrested hydrogenation, is a **new thing** in the "sense of the patent law; almost as new as a syn- "thetic egg evolved from vegetable albumen by "chemical treatment". Of course no one would contend that a synthetic egg was the same in all respects as a natural egg.

An analysis of the opinion shows that:

The first objection (*a*) of the defense was that the product was so obvious that its production did not amount to invention.

The Court said a sufficient answer to this was that no one in a score of years had produced it.

There is no confusion in this answer of product and process.

The next objection (*b*) the Court considered was that it did not involve invention to discover a use for a half-done product.

The Court found that this objection was unfounded; that if the molecular and chemical change induced a resulting change in appearance, utility and texture, it might well be called, when lard-like, a different thing from what it was as oil or

when fully saturated, the same as steam, water and ice are different things.

There was no confusion in this answer of product and process.

The third contention of defendants stated by the Court (*c*) was the allegation that before Burchenal, many imitation lards were made by mechanically mixing hard *animal* fats and cottonseed oil, and that some of them showed substantially the same chemical characteristics on analysis as Burchenal's product.

To this the Court replied that even if a chemist might think there was no difference between a mixture of cottonseed oil and animal fat, and the cook might use the two products for the same purpose and in the same way, this did not make the products the same. One contained cottonseed oil unconverted and the other did not; one contained animal matter and the other did not.

The *difference* might be unimportant from the standpoint of either chemist or cook. The *difference* was vital from that of the law, because the new product was "desirable, useful and apt for commercial success"; enlarging as it did the food products on the market and available for human consumption. In other words, even if the new product was only equally good with the old, the law would recognize the enlargement of the field of lard substitutes by the addition of a new equally good one as sufficient consideration for a patent.

There is no confusion in this answer between product and process; no statement by the Court that the products were the same. The Court is speaking of the *difference* between the two products; the same difference that was found by the Patent Office in issuing the companion Burchenal

patents and characterizing one as a *mixture* and the other (in suit) as *homogeneous;* "homogeneous in the sense of mixtureless", as the Court characterized petitioner's Kream Krisp in finding infringement.

However, it is not necessary to dispute as to the facts found by the court below because there can be no dispute on the record as to the superiority of the partially hydrogenized product to the "compound". Defendants' circulars are as emphatic to this effect as possible, they are not contradicted but are confirmed by the proof and by chemical theory and by the *prima facie* effect of the patent.

Infringement.

Defendant is the only infringer of the patent in suit. All others have respected its validity.

When we come to the question of infringement we are again met with the astonishing proposition of the petitioner that the patented product and the prior art products are the same thing, and that defendant's product is the same as the prior art product. We have fully demonstrated the contrary (*supra,* pp. 11 to 20).

Such a contention does not avoid the charge of infringement. Things that are equal to the same thing are equal to each other. If then the two claims, as products, call for the prior art lard compound or mixtures of 85 per cent. cottonseed oil and 15 per cent. stearin and they contend they have a prior art product, then they certainly admit infringement.

It is, of course, no answer to a charge of infringement to say the claim is invalid and void. When we are considering infringement we must assume validity of the claim. The entire discussion of infringement by counsel for petitioner is only a repetition of their discussion of validity.

The fact is, instead of avoiding the issue, counsel might as well admit infringement and confine their defense to invalidity. The transparent fact is that if claims 1 and 2 are valid the petitioner unquestionably infringes. It is no answer to this to say that their product does not contain the proportions and percentages of the glycerides specified in other claims, for instance, claims 5 to 7, which are not in issue.

The infringing product "Kream Krisp" is represented in this case by a can marked Plaintiff's Exhibit Defendant's Product, stipulated with its label and pamphlet circulars (p. 504).

That it is a lard-like food product appears from inspection and is clearly implied by its label. Dr. Baskerville confirms this by testifying that it is a lard-like food product and a substitute for Crisco (Rec. p. 264).

That it was made from cottonseed oil by the addition of hydrogen is stipulated (p. 504) and hence it is not a compound of cottonseed oil and added stearin and, therefore, it is homogenous.

That its hydrogenizing is incomplete in the sense of the patent in suit appears from its semi-solid consistency contrasted with the hard brittle character of Respondent's Exhibit 3, the hydrogenizing of which is approximately complete.

We have already shown (*supra*, pp. 6 to 20) that Kream Krisp embodies the fundamental principle of the patent and is distinguished from the prior art in the same way that Crisco is distinguished; namely, by the fact that the relative proportion of olein, linolin and lesser saturated ingredients to each other are different from what they are in cottonseed oil, the olein being somewhat higher and the linolin, &c., lower.

We have admitted that this change in the relative proportions of olein to linolin, &c., is not carried to the degree which is best and which is preferred by the patent in suit, but we have shown that this preferred degree is the subject of claims 3 to 7 and that claims 1 and 2 cover the fundamental principle and are not so limited.

It is elemental patent law (*infra,* pp. 76 to 80) that an element expressed in one claim cannot be read into another claim. The very fact that it is expressed in one claim shows the intention to exclude it from another wherein it is not expressed.

As to the proportion of stearin, the patent says (p. 1, line 73) that it shall be such as "to make the product congeal at ordinary temperatures. There is, of course, no denial that Kream Krisp congeals at ordinary temperatures. In fact defendants expert Walker admits that in the manufacture of Kream Krisp they regulate the proportion of stearin developed (or, what is the same thing, the extent to which it is converted), by testing the temperature at which it ceases to congeal or melts.

Dr. Walker in describing the methods used in petitioner's manufacture for stopping the hydrogenizing at semi-solid consistency says as follows (Rec. p. 315):

> "This operation is controlled by withdraw-
> "ing here a sample periodically into a 'watch
> "glass' and putting that sample on a cake of
> "ice in this refrigerator. This little sample
> "is carefully watched and the melting point of
> "it noted so that the proper conditions of
> "the reaction can be constantly watched."

Dr. Walker says further (Rec. p. 327, Ans. 97) that these tests were made perhaps twice a day, and were to determine the nature of the product by

its melting point. If they found the melting point mounting higher, they would run the oil a little faster to make it absorb less hydrogen, and if the melting point ran down they would run the oil a little slower.

Dr. Walker further testifies (Rec. p. 328):

> "x-Q. 115. Do you know why it is that the "defendants exercise so much care to keep the "melting point down to a point or the point "that you have indicated? A. Uniformity of "product is always highly desirable in any "commercial article of manufacture.
>
> * * * * *
>
> "x-Q. 118. What effect would it" [a slower flow of oil] "have on the product? A. Run-"ning it slower would give you a higher melt-"ing point.
>
> "x-Q. 119. And what would be the difference "in the physical characteristics of the product? "A. As the melting point rises the material is "harder at ordinary temperatures."

This careful regulation in defendant's process corresponds exactly with the following statement of invention of the patent in suit: "According to "the present invention, the amount of hydrogen "absorbed is carefully regulated and limited. In "practice, the operation is stopped when the oil has "been converted into a product which cools to a "white or yellowish semi-solid" (p. 1, lines 87-92).

Dr. Walker admits (Rec. 328, Ans. 113) that at the time the specimen of Kream-Krisp in evidence was manufactured the defendant must have regulated its process to reduce this melting point to 35.7 C., though during the fifteen minutes (Rec. 328, Ans. 112) that Dr. Walker saw defendant's process in November, 1916, he says it was being regulated to a melting point of "42 to 43 approxi-

mately" (Rec. 327, Ans. 101). Of course it makes no difference to infringement whether it be regulated at a melting point of 35.7 or approximately 42 to 43, providing the regulation be such as to secure the semi-solid consistency, or congealing at ordinary temperatures, referred to in the patent (p. 1, line 73). Claims 1 and 2 are not limited to a precise melting point, although claim 4 is. The specification does not indicate any hard and fast limit at 40 degrees C., because it says "about" that figure (p. 2, line 1).

Dr. Walker admits the practical equivalency of Crisco and Kream-Krisp for general purposes. In answer to question by the Court he stated (Rec. p. 320, Ans. 57), "I think there is no doubt but what they do" answer the same purposes in general.

Dr. Walker, also after stating the results of defendant's process, admitted the same results would be true of the batch-process (the process indicated by the patent in suit), excepting as to percentages of the tri-glyceride components, with which claims 1 and 2 are not concerned:

> "x-Q. 126. Excepting in percentages the "same would be true as to the batch method "I suppose. A. The same general statement "would hold for that method, yes, other than "the percentages named."

Even the temperature "about 170° C." (Walker's Ans. 128, Rec. p. 330) at which defendant runs its process is substantially the same as the temperature "about 155° C." specified in the Burchenal patent. Dr. Walker admits (Ans. 131-132, Rec. p. 330) that Moore's patent says it may be much lower, and that he thinks that that is a fair statement.

The Moore Patents of Defendant.

The conclusive proof of infringement, however, is that petitioners have fully disclosed how their Kream Krisp product is made, and its constitution, in petitioner's Moore patents, which they put in evidence as correctly describing their process; and by the defendant's pamphlets distributed with the sale of their product.

The two Moore patents, No. 1,121,860, dated December 22, 1914, and No. 1,184,480, dated May 23, 1916 (Rec. pp. 681 to 702), were testified to by defendant's expert as describing the defendant's process (Rec. p. 323), and defendant's counsel (Rec. p. 331) stated that they were in "concrete "form a description of the process and apparatus "under which the defendant acted". Defendant, therefore, cannot deny the following description of their process given in the Moore patent showing that provision is made to insure that the partial hydrogenation shall extend to all parts of the cottonseed oil which get into the product and that therefore Kream Krisp shall contain no unchanged cottonseed oil (Rec. p. 698, line 45) (Italics ours):

"One of the difficulties that I have met with "practically in the operation of an apparatus of "this character having a diaphragm of large area "has been due to the occasional cracking of the "catalytic layer and also due to the expansion of "the casing, which forms cracks or spaces at the "outer edges of the diaphragm, through all of which "cracks and spaces the hydrogen escapes into the "lower compartment, thereby permitting some oil "to pass through without being reduced. * * * "I have overcome this difficulty by incorporating "with the layer of catalytic material long fibre

"asbestos as hereinbefore explained, which I find "prevents the formation of cracks."

The physical exhibits Q and R, offered in evidence by defendant (Rec. p. 324) and described by its expert (Rec. pp. 306 to 308) as showing the construction of the diaphragm used by defendant, contain the asbestos material above referred to, and show the absence of any cracks referred to as permitting unreduced oil to pass. Therefore, the statement of the Moore patent applied to the defendant's process, is that no oil is permitted to pass through without being reduced.

The Moore patent also contains a special provision to prevent any oil which might accidentally pass through without being reduced from forming part of the product. This precautionary provision is also contained in the defendant's apparatus as described by defendant's expert. It is described as follows in the Moore patent (Rec. p. 686, line 11):

"The hydrogen which reaches the compartment "18 (in which the atmosphere of hydrogen is at a "low pressure), together with any entrained oil, is "pumped therefrom by the pump 52 and through "the separator 54 back to the pipe 25", where it is used over again. This oil, therefore, is separated from the product which is discharged from the compartment 18 through the pipe 20.

It is clear, therefore, from the defendant's patents, that defendant's process was conducted so as to prevent any oil from getting into the product "without being reduced". This evidence, introduced by defendant as the concrete description of its process, therefore proves the correctness of the Circuit Court of Appeals in treating defendant's product as "wholly consisting of an incompletely "hydrogenized cottonseed oil". It also proves that

defendant's product is "homogeneous" in that hydrogenation extends throughout all parts, there being no oil permitted in the product "without "being reduced", or, in other words, the reduction, or hydrogenation, extends throughout all parts of the product.

It also proves that every part of the olein, linolin and lesser saturated ingredients must be affected, from which it of course follows that their relative proportion to each other must be changed in conformity with the fundamental principle of the patent (*supra*, p. 6) because it is admitted (Walker, p. 337, x-Q. 188), that the linolin and lesser saturated ingredients are convertible in higher degree than the olein.

Defendant's Circulars.

To the same effect are the defendant's booklets issued with the sale of the product, and describing its nature and qualities. Three of these booklets were introduced at the outset of the *prima facie* case as Exhibit 2 (Rec. p. 264), and in the stipulation, March 17, 1917 (Rec. p. 504), defendant acknowledged "that the defendant has issued and "circulated in the trade pamphlets" like these. They appear in the record at pages 505 to 523. In describing defendant's product, Kream Krisp, they say (Rec. pp. 509 and 516)—italics ours:

"Kream Krisp, although made exclusively from "highly refined vegetable oil, *contains no oil itself.* "The oil is *completely* changed by hydrogenation."

These booklets also say (Rec. p. 510) that Kream Krisp *"contains no hard fats"*.

The above statements were made in defendant's

booklets distinguishing Kream Krisp from what it referred to as the "compounds" (Rec. pp. 506, 507, 508, 509), which defendant now argues were in no respect different. The fact stated in these booklets that Kream Krisp contains "no oil itself", and "no hard fats", but only the lard-like, partially hydrogenized oil, is the reason why Kream Krisp is "homogeneous", and these booklets are full of statements to the effect that this difference renders Kream Krisp far superior in cooking to the "compounds", and add (Rec. p. 509), "for this reason "Kream Krisp has been called one of the most "notable discoveries in pure food chemistry of the "present day".

In *Diamond Co.* v. *Consolidated Co.*, 220 U. S. 441, this court used as a reason in favor of the patentability of the subject matter the fact that the defendant had shown "the tribute of its imitation". Here we have not merely "the tribute of its imitation" but in addition thereto the tribute of its broadcast announcements to the public in its circulars.

In distinguishing Kream Krisp from compounds by the fact that it "contains no oil" defendant's booklets follow the same distinction made by the patent in suit where it says (p. 2, line 8) that the product of the patent shows no cottonseed oil "thereby differing from all commercial lard substitutes containing this oil".

Although these booklets were introduced at the opening of the *prima facie* case and, therefore, confronted defendant throughout its answering testimony, it never referred to any of them in its testimony, either by way of contradiction or explanation.

In *Schlicht Heat, Light & Power Co.* v. *Aeolipyle* Co., 117 F. 299-303, Judge COXE said:

> "The admissions of the defendant through its circulars and otherwise cannot be ignored. Such admissions may be insufficient to establish the validity of a patent, but upon the question of infringement they are exceedingly persuasive. These circulars state that with the use of the 'aeolipyle' the maintenance of a good fire does not depend upon air through the grate, the holes in the side of the 'aeolipyle' supplying all the draft necessary for the fire at all times, the heated air being supplied to the gases of the combustion chamber causing them to burn and produce increased heat. In short, most of the statements of these circulars are as applicable to the complainant's apparatus as to that of the defendant."

It should be remembered that the statement of defendant's circulars that Kream Krisp "contains no oil" are confirmed by defendant's analyses showing the absence from Kream Krisp of the cottonseed oil relationship between olein and linolin (*supra*, p. 12).

In view of the following statements of defendant in its circulars, repeating substantially the statements of the patent in suit, defendant is certainly not in a position to deny the value of this invention compared with compounds and animal lard:

"Because when you cook with lard or butter, the "animal substances will smoke and burn at mod- "erate heat; you have to work them at a tempera- "ture which requires prolonged cooking. Kream "Krisp which contains no animal substance what- "ever, can be heated fifty degrees hotter than lard, "and over one hundred degrees hotter than butter, "and your doughnuts, fritters or patties will cook "so quickly that but little fat can be absorbed" (p. 506). See similar statement in patent in suit (p. 1, line 97).

"You will quickly note that anything you may "cook with Kream Krisp remains fresh and sweet.

"In this respect Kream Krisp is a wonderful im- "provement over lard, butter and the so-called com- "pounds.

"The reason for this is a simple one. The quality "that turns butter, lard, etc. rancid, is the quality "of absorbing oxygen. Kream Krisp contains noth- "ing which oxidizes readily; hence it resists oxida- "tion far better than lard, butter, or any other cook- "ing fats in use" (p. 508).

"Also note that any dish cooked with Kream "Krisp remains sweet. Butter, lard and lard com- "pounds turn rancid because they absorb oyxgen. "But Kream Krisp resists oxidation better than "any shortening in use" (p. 515). See patent in suit (p. 1, lines 28 and 97).

"No form of vegetable oil (fluid) can be depended "upon to remain sweet. But, although Kream "Krisp is a pure vegetable oil product, the hydro- "gen which changes it into its semi-solid (butter- "like) form renders it immune to chemical change" (p. 512).

"Vegetable oils and cooking compounds contain- "ing such oils have been in use for many years and "have largely taken the place of lard for cooking, "wherever the distinctive flavor of the oil has not "been objectionable.

"They have been used as cheap substitutes.

"But not until the advent of Kream Krisp has "it been practicable for the housewife to do better "cooking, and produce more delicately flavored "articles of food, with the aid of a vegetable shorten- "ing, than if lard, or even butter were used.

"Kream Krisp, although made exclusively from "highly refined vegetable oil, contains no oil it- "self! The oil is completely changed by hydro- "genation, under the influence of heat to a butter-

"like substance; and the oily flavor completely dis-
"appears in this process, leaving in Kream Krisp
"only the most wholesome and delicate elements, ex-
"actly adapted to high-grade cooking. For this rea-
"son Kream Krisp has been called one of the most
"notable discoveries in pure food chemistry of the
"present day" (p. 509).

The Halphen Test.

Another proof that the product of the patent and defendant's product are "honogeneous" is the Halphen test, as to which the Burchenal patent says (p. 2, line 7):

"It (the patented product) shows no free cot-
"tonseed oil when subjected to the Halphen test,
"thereby differing from all commercial lard substi-
"tutes containing this oil."

This is the test which the petitioner's brief attempts to belittle as inconclusive. It is sufficiently conclusive for all the purposes of this case. It is a standard test, in the sense that it is a test almost universally relied upon for detecting the presence or absence of unconverted cottonseed oil. It is a test used in defendant's factory (Rec. p. 360) and in plaintiff's factory (Rec. p. 489). It is so sensitive that it will detect the presence of as little as 1 per cent. of cottonseed oil (Rec. p. 266, Q. 25). When cottonseed oil is present, or any other oil which it detects in any substantial quantity, it shows a red color. If it shows only a pink color or no color at all, it is absolute proof that no substantial amount of unchanged cottonseed oil is present. It is proved (pp. 265, 489) without denial that the can of Kream Krisp stipulated in the case (p. 504) as the infringement shows no coloration whatsoever under this test. Defendant's wit-

ness Richter admits (p. 388, x-Q. 328) that "we tested this sample in evidence and found a negative Halphen test".

Petitioner's brief says that cottonseed oil which has been heated to a high temperature, say, 250 degrees, will not be detected by the Halphen test, but this fact does not destroy the value of the Halphen test for purposes of this case. Normally neither the process of the patent nor defendant's process uses such a high temperature, nor is it used in making the "compounds". Applied to the compounds, which, it will be remembered, contained from 80 to 90 per cent. of unchanged cottonseed oil, the Halphen test, of course, shows a strong red coloration. The statement of the patent has never been questioned, that the product of the patent shows substantially no coloration, and this proves the absence of unchanged cottonseed oil from the patented product. With all the specimens of Kream Krisp that have been bought on the market, he Halphen test either shows no coloration at all or only a pink color, indicating only a 1 or 2 per cent. trace (Rec. pp. 489, 265, 468).

Even if Kream Krisp did contain considerable cottonseed oil it would certainly not be enough to be so comparable with the 80 to 90 per cent. of the compound as to make the two products alike.

It should be remembered also that, as we have already shown, the defendant's own analyses show the absence of cotton seed oil by showing a different relationship in the proportions of linolin to olein from that existing in cotton seed oil (*supra*, p. 12).

In response to all this, defendant has introduced only the testimony of its regular employee Richter, who undertakes to explain the absence of any coloration with the specimen stipulated and in evidence as the infringement, by the lame excuse (Rec. p. 360) that it is probable that it may have

been due to an abnormal elevation of temperature, and adding, "I can conceive of such a thing taking "place in case of an accident to our plant, causing "a temporary shut-down". We do not believe the Court will accept this as a sufficient excuse from an infringer, particularly since it is contrary to defendant's patents to Moore and contrary to defendant's pamphlets and contrary to defendant's own analyses of Kream Krisp to which we have so frequently referred.

This employee of the defendant, Richter, further says (Rec. pp. 360 and 388), that he has tested defendant's product from time to time and also, for the purpose of evidence in this case, has gone back over the old samples stored away for two or three years, and with the exceptions of three samples, the Halphen test gives positive results. He is entirely uncorroborated in this, and even his testimony is inconclusive, because he does not state what degree of coloration the tests showed; therefore it is consistent with his testimony that only a pink coloration was obtained, indicative of only a trace, such as Morrison said contained (Rec. p. 489, Q. 53) only 1 or 2 per cent. of cottonseed oil.

In order to contradict their own Moore patents and their testimony that they clearly describe defendant's process, and also to contradict their pamphlets distributed with the sale of their product, it was necessary for defendant either to perform these tests in our presence, or at least to corroborate their employee Richter.

Defendant's expert Walker, after testifying that the defendant's process is clearly described in the Moore patents (Rec. p. 323), has given testimony in answer to Questions 124 and 125, page 329, and Questions 223 and 224, page 340, which is quoted in defendant's brief as showing that the defendant's product contains unconverted cottonseed oil.

We do not so understand this testimony. On the contrary, the analysis of defendant's product here given shows that the conversion extended to all parts of the oil, even to the relationship between the olein and linolin (*supra*, p. 12). It does not at all show that this conversion of the elements did not extend throughout all parts of the oil itself, or, in other words, it does not negative the statement of the Moore patent (Rec. p. 698, line 55), that no part of the oil is permitted in the product "without being reduced". It is consistent with Walker's testimony if every drop of the product is reduced, or, in other words, hydrogenized, to the extent shown by Walker's analysis. But Walker's analysis does show that in Kream Krisp the relative proportion of olein and linolin, &c., to each other has been changed from what it was in cottonseed oil, which is all that is necessary for proving that Kream Krisp conforms to the fundamental principle of the patent which we have discussed (*supra*, p. 6).

Walker was forced to admit (p. 329, x-Q. 126) that excepting in percentages his analysis and the conclusion he draws therefrom would be true as to the process of the patent in suit referred to as the Batch method. This admission convicts his conclusion of error because no witness has pretended that the product of the patent contains any unconverted cottonseed oil or has questioned the correctness of the statement of the patent that the product is shown by the Halphen test to contain no free cottonseed oil (p. 2, line 7).

Any value of Walker's testimony as to what happens to the oil in going through defendant's diaphragm is vitiated by his admissions that he has never looked at the diaphragm when in opera-

tion (p. 340, x-Q. 220). He assumes that there is a "lag" in the passage of the oil, but admits that he does not know positively that there is any "lag" (p. 341, x-Q. 229). But whether his theory as to passage of unconverted oil through defendant's diaphragm be correct or not, it does not follow that any such unconverted oil would be in the product, because his theory is that this supposed unconverted oil is "blown through" the diaphragm by the hydrogen under 90 pounds pressure (p. 340, x-Q. 221; p. 342, x-Q. 234). This supposed unconverted oil would, therefore, be entrained with the hydrogen on its exit from the diaphragm, but would not enter the product because of the provision made in the Moore patent, and in defendant's apparatus, to keep this entrained oil separate from the product and conduct it back to the starting point. This provision is described in the Moore patent (p. 686, lines 10 to 16), and in Walker's sketch of defendant's apparatus (opposite p. 306), is marked "separator for catching any oil in gas". Therefore, Walker's representation of the defendant's process, when carefully considered, confirms instead of contradicts the statement of the Moore patent that the defendant's process has "overcome this difficulty" of "permitting some oil to pass through without being reduced" (p. 698, lines 54 to 60).

Infringement Further Discussed.

The invention that Burchenal made was to provide a new fat by chemical treatment of cotton-seed oil with hydrogen to get rid as far as possible of the unstable, oxidizable, rancid-producing glycerides, linolin and those of lesser saturation, to increase the stable glycerides at the expense of the linolin and to continue adding hydrogen until

the product became semi-solid and could be used as lard is used.

All of the experts on both sides agree that the moment you begin to introduce hydrogen in the oil, the hydrogen attacks the linolin and weaker gylcerides first (Morrison, Rec. p. 197, and Walker, Rec. p. 299). Therefore it must decrease the linolin and lesser saturated glycerides relatively to the olein. Counsel for petitioner on pages 58-61 of their brief not only admit this but lay great stress upon it in comparing respondent's batch method of hydrogenizing with petitioner's continuous method under the Moore patents.

> "During this operation of the batch process of hydrogenation the hydrogen *selects* the linolin, because linolin has six double bonds and is more unstable than olein, which has but three double bonds, and linolin, by reason of this fact, is acted upon first by the hydrogen and converted to olein. This phenomenon, *which is an inevitable result of the batch process*, and is the law of that process, is explained by Dr. Walker (Rec. p. 299), and he is corroborated by Respondent's Chemical Superintendent, Mr. Morrison, as follows:
>
> Q. 28. That is to say, it was your observation that the linolin was first changed to, say, olein, without a corresponding change of olein to stearin? A. That is correct, sir.
>
> Q. 29. So that in the final product you would have a fairly large proportion of olein and a small proportion of linolin? A. That is correct, sir.
>
> Q. 30. In other words, you determined that there is a certain selective action that takes place during the hydrogenation? A. Yes." (Petitioner's Brief, pp. 59, 60.)

But they say under the Moore continuous method of treatment "Only a small part of the linolin is

acted on, but instead of being changed to olein it is converted to stearin" (Brief, p. 61). On the contrary their own analysis of Kream Krisp (Rec. p. 358) shows that their process raises the olein from 32 to 34 per cent. as Walker admits (p. 336).

It is claimed that the remainder of the oil in the Moore apparatus passes through without any chemical action whatever. This passage of oil through the diaphragm without any chemical action is directly contrary to the teaching of the Moore patent as we have pointed out at length in our discussion of the Moore patents (*supra*, p. 56 *et seq.*). But even if it were true, the oil and hydrogen gas would in accordance with the design of Moore be entrained and pumped back to be returned again for treatment.

With the normal use of the Moore apparatus, no oil is to pass through "without reduction".

The point to be noted is that the cottonseed oil treated by petitioner and that treated by respondent is the same oil, and the same powdered nickel is used as a catalyst. When the hydrogen, the nickel powder and the molecules of the oil are brought together the change in the oil takes place, and then in the apparatus of both parties the hydrogen selects the linolin first and decreases the amount of this weak, unstable glyceride. In the one case this linolin may be changed to olein and in the other it may be changed to stearin, but the object of the Burchenal invention is attained in both cases. The proportional relationship of olein to linolin is changed in both cases, the olein being somewhat increased and the linolin, &c., greatly decreased. The hydrogenation in both cases is stopped when the product reaches the desired degree of semi-solidity. The homogeneity of the two products continues throughout, because the oil is

maintained as a unit and changed throughout and nothing added from outside.

There is a difference in the two cases in the method and apparatus employed to chemically add the hydrogen and this results in specifically different percentages of the glycerides for the two products, but this does not take the product of either party out of the single unit, "homogeneous fat" class and put it in the "compound" class.

It is well known that there is quite a variation in the specific proportion of the solid glycerides in different samples of cottonseed oil. There is no absolutely fixed percentage even in that case (Walker, p. 336, x-Q. 181).

Mr. Morrison (Rec. p. 491) gives a range of saturated fats in cottonseed oil ranging from 10 to 12 per cent. for Chinese oils to an average of 21 per cent. for American oil. When an analysis of any incompletely hydrogenized material is made, it is not possible to tell what change has taken place without knowing what the proportions of glycerides were in the original oil. This has never been given in the products analyzed and placed on the charts by petitioner, so that it cannot be told from these charts to what exact extent the linolin has been decreased and the olein or stearin increased in the final product. We do know, however, even from Walker's analysis, that petitioner's Kream Krisp contains relatively less linolin and more olein than could possibly be obtained if petitioner had added to the same cottonseed oil stearin from an outside source.

In manufacturing and selling the incompletely hydrogenized product the petitioner has obviously infringed claims 1 and 2 of the patent in suit, and it has infringed because the product contains the

essentials of the patented product, because it contains substantially no cottonseed oil and because the detrimental oxidizable component, linolin, and glycerides of lower saturation have been lowered in amount relatively to the olein. It is surely immaterial that the linolin has not been decreased or the olein increased to the extent found in the best product of Burchenal and specified in claims 5 to 7. The very fact that petitioner has a different method of adding the hydrogen, and instead of extracting, so to speak, the linolin from a single body or batch of oil, it keeps renewing the supply of oil continuously, accounts for the specific difference in percentage of the component glycerides, but while the processes are different, the products are the same in the fundamental characteristic that the linolin has been decreased relatively to the olein and the original cottonseed oil has disappeared.

There were a number of old methods of hydrogenating either of which were available to a man skilled in the art for practicing the process of the patent in suit. The batch methods of Normann (Rec. p. 585) and Kayser (Rec. 575), the continuous methods of Bedford & Williams (Rec. 529) and Erdman (Rec. 592). In Normann and Kayser, the hydrogen bubbled through the oil and the whole mass of oil and catalyst was treated continuously with the hydrogen. In the Bedford & Williams method the oil was run through or over the catalyst supported on pumice stone, either in an atmosphere of hydrogen or the hydrogen was sprayed over the fixed catalyst. In Erdman the oil was sprayed by the incoming hydrogen just as in the defendant's apparatus against a rotating cylinder plated with the catalyst, and the treated

oil was then run through a body of catalyst in the bottom of the vessel.

All of the old methods fully saturated the materials. They converted all of the linolin and all of the olein into stearin, or substantially so. Burchenal, through Kayser, was familiar with the batch method. He therefore preferred that method of treatment. Burchenal, however, had a new product in view. He did not change all of the linolin and olein to stearin, but carried on the conversion until he had changed sufficient linolin to either one or the other material to give him his lard-like hydrogenated food product. Because the hydrogenization process was old in no way negatived the novelty of his new product, obtained by his special manipulation of that process.

Burchenal obtained a specific product which resembles Kream Krisp in that, compared with cottonseed oil, it was high in olein, low in linolin and with only enough added stearin to give the proper lard-like material. If Burchenal had preferred the Bedford & Williams process, where the oil is passed continuously across or through the fixed catalyst supported on pieces of pumice, he would have obtained, by special manipulation of that process, a product which, while responding fully to his invention, might probably not have presented the specific changes called for in the specific final claims of his patent. So, if he had preferred the Erdman process of spraying the oil by the hydrogen against a rotating catalyzed cylinder and he had specially manipulated that process, he might have obtained still a third species of his invention.

In every case, however, the introduction of hydrogen would reduce the linolin first and lessen its

proportion relatively to the olein and furnish the patented product.

Then Moore, of the defendant company, in order to make the Burchenal product by chemically changing the relationship of the component liquid glycerides and creating sufficient stearin to obtain the desired lard-like consistency, designs a modified Erdman machine of the continuous Bedford & Williams type. In this machine he rotates a spray of hydrogen and oil over a fixed diaphragm of catalyst, and in this way has a small portion of the oil, catalyst and nickel in contact on a moving pie-shaped sector portion of his diaphram, say about $\frac{1}{10}$ of disk, and a much greater portion of his oil, catalyst and hydrogen in contact through the remaining $\frac{9}{10}$ of his diaphragm.

This Moore machine was designed a number of years after Burchenal entered the field, and for the very purpose of producing an incompletely hydrogenized, homogeneous, lard-like food product. Moore, by the use of his machine, thus produces exactly the generic product of the patent, but he obtains a different specific change in the components. The only difference between the product produced in the Moore machine and that produced by Burchenal is the degree of variation of the component glycerides, so that the product of the Berlin Mills Co. is not in accordance with the preference of Burchenal expressed in claims 3 to 7.

Kream Krisp strictly conforms even to the preferred description of the specification, which describes the preferred condition (p. 1, lines 65 to 74) as follows:

"It is, therefore, my object * * * to change "the chemical composition of the oil to obtain a "product with a high percentage of olein, a low "percentage of linolin and the lesser saturated "fats, and with only sufficient stearin to make the "product congeal at ordinary temperature."

Since there is no question that Kream Krisp will "congeal at ordinary temperatures" and will melt at temperatures higher than ordinary, it obviously conforms with the above so far as stearin is concerned.

Kream Krisp also conforms with the above preferred condition so far as concerns the olein and the linolin and the lesser saturated fats. This can readily be shown by a comparison of the figures for olein and linolein given in petitioner's brief at pages 48, 61 and 69.

Defendant's expert Walker was forced to admit the conformity of Kream Krisp with the preferred expression of the specification, above quoted (p. 336).

"x-Q. 176. * * * It is true is it not that de- "fendant's Kream Krisp is lower in per cent. of "linolein than the cottonseed oil from which it is "produced? And higher in per cent. of olein? A. "Referring to Chart No. 401, it is seen that the "linolein is less than in the cottonseed oil. The "olein is slightly, though very slightly, greater.

"x-Q. 177. And is it also true that there is suffi- "cient stearin in defendant's Kream Krisp to make "it congealed or solid at ordinary temperatures. "A. Kream Krisp at least at ordinary tempera- "tures congeals. * * * I have never seen any "Kream Krisp that I would speak of as being "solid.

"x-Q. 178. Well, omitting the word solid from

"the last question, that is so as I understand you? "A. I think so."

On the other hand, the all-vegetable "compounds" not only do not conform with the above, but with respect to the olein, are the direct reverse thereof. In other words, in comparison with cottonseed oil, instead of containing "a high percentage of olein", all the analyses of the "compounds" show the same proportion in percentage of olein to linolin as the cottonseed oil.

Law of Infringement.

There is no doubt that Kream-Krisp would be better if it carried the fundamental principle of the patent further so as to more nearly comply with the proportions of the patent. If it were higher than it is in olein and lower in linolin it would be less liable to oxidation. This is admitted by Dr. Walker (Rec. p. 320, Ans. 59) and is testified to by Morrison (Rec. p. 489, Ans. 59).

As it is, so far as rancidity is concerned it comes next to Crisco and before the lard compounds (Bacon, Rec. 449). But the fact that Kream-Krisp is an inferior following of the patent does not relieve it from infringement, because the law is to the contrary.

In *Sewall* v. *Jones*, 91 U. S. 171, 183, the patent was for an improved process for preserving Indian corn. This Court said:

> "To constitute an infringement, the thing used by defendant must be such as substantially to embody the patentee's mode of operation, and thereby to attain the same kind of result as was reached by his invention. It is not necessary that the defendant should employ the plaintiff's invention to as good advantage as he employed it, or that the result should be the same in degree; but it must be the same in kind."

In the Cawood Patent case, 94 U. S. 695, at page 708, the Court said:

> "Because the invention has been used in an imperfect condition, or altered slightly in one particular without serious loss, is no proof that it was no invention, or that the use of it in its altered condition was no infringement."

Cimiotti v. *Bowsky*, 95 F. 474, 476, Townsend, *J.*:

> "If the limited range of movement of defendant's brush is only sufficient to secure a part of the advantages derived from complainant's invention, this is no defense. The movable rotary brush is the essential element of complainant's invention covered by the eighth claim, and complainants are entitled to all the beneficial uses of such invention; and it is immaterial that the infringing device works poorly, or is not so practicable as the one infringed. These minor details of construction and additional functions claimed for defendant's machine do not show such substantial differences as affect the essential identity of the two machines, so far as the operation of the movable brush and its results are concerned."

Penfield v. *Chambers*, 92 F. 630, 653, C. C. A., 6th C., opinion by Judge Taft:

> "An infringer cannot evade liability for his infringement by deliberately diminishing its utility without changing materially its form, its chief function or its manner of operation."

King Ax Co. v. *Hubbard*, 97 F. 795, 803, C. C. A., 6th Cir., opinion by Judge Taft:

> "This is an instance, not unfrequent in patent litigation, where the infringer has sought to evade the claims of a patent, the substance of which he is appropriating, by deliberately impairing the function of one element, with-

out destroying the substantial identity of structure, operation and result."

See, also,

Campbell v. *Wesel,* 124 F. 322, Thomas, *J.*

Milner v. *Yesbera,* 133 F. 916, C. C. A., 6th C.

Marlin v. *Kellogg,* 139 F. 31, Platt, *J.*

Kelsey v. *Spear,* 155 F. 976, Archibald, *J.*

Underfeed Co. v. *American Co.,* 165 F. 65, Brown, *J.*

Coupe v. *Weatherhead,* 16 F. 673.

Chicago Co. v. *Busch,* F. C., No. 2669.

Roberts v. *Harnden,* F. C., No. 11903.

Hobbs v. *Beach,* 180 U. S. 383.

To limit claims 1 and 2 to the specific product described in the patent is not only not required by the prior art, but would make them coextensive with claims 3–7, which is not permissible under the law, as shown by the following cases:

Thomson-Houston Elec Co. v. *Union Ry. Co.,* 86 F. 636, 638, C. C. A., 2nd Cir.

> "The rule of construction which usually obtains whereby the several claims of a patent are to be differentiated so that effect may be given each, cannot be reasonably invoked in behalf of this patent, where so many of the claims are duplicated."

Scaife v. *Falls City Mills,* 209 F. 210, 214, C. C. A., 6th Cir.

> "Each claim should be capable of such differentiation [from other claims], else it has no right to exist."

Ryder v. *Schlichter,* 126 F. 487, 491, C. C. A., 3rd Cir.

> "It is evident that the express terms of the claim do not limit the patentee to a particular

device, and therefore the construction adopted by the court below practically rewrote the claim, and in effect expunged it from the patent; for to limit it to the one form of structure described in the specification and shown in the drawings necessarily introduced into the claim such modifications of the language used by the inventor as turned it into a substantial, and therefore a superfluous, equivalent of the claims preceding. These three claims are concerned with the particular structure described by the drawings and the specification, and to confine the fourth claim, which is drawn broadly, to such a structure, denies to the claim any effect whatever. * * * Such a restriction was not required by the prior art, in order to save the claim from being declared invalid, and, except for the purpose of saving a claim, its scope should not be restricted beyond the fair and ordinary meaning of the words."

See, also,

Freeman Elec. Co v. *General Elec. Co.*, 191 F. 168, C. C. A., 3rd Cir.

O'Rourke Co. v. *McMullen*, 160 F. 933, 939, rehearing, C. C. A., 2nd Cir.:

"Upon reflection we are convinced that we improperly limited the second claim by reading into it the words 'either by means of a stuffing box or packing on the valve or by means of a stuffing box on the rope.' The claim itself is entirely free from such limitation. * * * Significance must be given to the fact that 'stuffing box to close the central opening' is an element of the third claim, and if we read 'a stuffing box' into the second claim the two claims are substantially alike. Such a construction should be avoided unless imperatively necessary."

Thomson-Houston Elec. Co. v. *Elmira Ry. Co.*, 71 F. 396, 400, C. C. A., 2nd Cir.:

> "In view of the phraseology of the other three claims, the second claim cannot be restricted to a combination in which the contact device is grooved, or the overhead conductor is a line wire, because those claims are meaningless unless they are intended to specify the limitations which differentiate their respective combinations from that of the second claim."

B. F. Avery & Sons v. *J. I. Case Plow Works*, 139 F. 878, 882, Quarles, *J.*

> "It is evident that claims 2 to 6 were intended for a broad, general description of a combination, referring generally to means of adjusting, etc., for the purpose of showing an operative device, while the function of claims 7 and 8 was to describe specifically the mechanism suggested by the patentee to embody the principle of the discovery. Any construction which would make each of these eight claims a duplicate of every other would defeat the manifest purpose of the inventor. The Patent Office twice challenged the broad claims, but in neither instance made objection to the specific claims 7 and 8. It seems to be settled that when certain features are expressly set up in certain claims and entirely omitted in others, the court cannot read them into the claims where the inventor has omitted them."

National Cash Register Co. v. *Am. Cash Register Co.*, 53 F. 367, 370, C. C. A., 3rd Cir.:

> "It [the 3rd claim] cannot be restricted to all or any of the devices used in the mediate connection between the series of keys and the drawer holder, not only because they are not even specified in the third claim, but also be-

cause they are expressly claimed in the second claim. * * *

"There is nothing upon this record which would warrant us in attributing to the patentee the folly of having presented, and to the patent office the improvidence of having allowed, two claims for the same thing. The distinction between them must be maintained, that both may be given effect."

Mast, Foos & Co. v. *Dempster Co.*, 82 F. 327, 333, C. C. A., 8th Cir.:

"Any construction which would read into the first claim these additional elements renders it useless and unmeaning, because it gives it the same effect as the claims which follow it, and in this way shows that neither the patentee nor the patent office contemplated such an interpretation. The appellee has appropriated the essential feature of this invention,—the internal-toothed sugar-gear in combination with the pinion, pitman, wind-shaft, and pump-rod of a windmill. The terms of the first claim of the patent are plain and unambiguous. They need no construction, and, when taken in their ordinary signification, they fully describe and clearly claim the combination which the appellee is using. It ought not to escape here, because it does not use subordinate or unimportant elements of combinations described in other claims, which were undoubtedly omitted from this claim that the inventor might more perfectly secure the essential element of his invention."

See, also,

McCarty v. *R. R. Co.*, 160 U. S. 110, 116.

Thomson-Houston Co. v. *Nassau Co.*, 110 F. 647, Thomas, *J.*

Bresnahan v. *Tripp*, 102 F. 899, Putnam, *J.*

Boyer v. *Keller*, 127 F. 130, 134, C. C. A., 3rd Cir.

Canada v. *Michigan Co.*, 124 F. 486, C. C. A., 6th C.

Brown Mfg. Co. v. *Deere*, 61 F. 972, C. C. A., 7th C.

National Car Brake Shoe Co. v. *Ry. Co.*, 4 F. 219, 222, Drummond, *J.*

Tondeur v. *Stewart*, 28 F. 561, Acheson, *J.*

Page Woven Wire Fence Co. v. *Land*, 49 F. 936, 942, Jackson, *J.*

Mfg. Co. v. *Wharton*, 28 F. 189, Butler, *J.*

History of the Art of Hydrogenization.

In the appendix of petitioner's brief under the above title, there are serious fallacies as to almost every item of evidence discussed.

The first item is the **Normann** British patent No. 1515 of 1903 (p. 584) and the corresponding German patent No. 141,029 (p. 591). Neither of these Normann patents refers in any way to the stopping of the hydrogenizing process short of completion or the production of an incompletely hydrogenized product, nor does either of them suggest the possibility of utilizing any hydrogenized product in the food art.

The only industrial application attempted of the Normann patents was by Joseph Crossfield & Sons of England and the proof is that their product was "very hard—a good deal the appearance of a piece of porcelain or china" (p. 19, Q. 213) and the use made of it by Crossfield was for the manufacture of soap, in which the proof is that the substance has to be "hard" (pp. 447-8, Qs. 350-2; p. 169, Q. 400; p. 37, Qs. 423-4). The hardness of the Normann product

is confirmed by the statement of invention therein (p. 584). "I have found that by this catalytic method it is easy to convert unsaturated fatty acids into *saturated acids*". The word "saturated" is repeatedly used in the Normann specification and is used in both claims in expressing the product. It means completely hydrogenized and hard.

It was in the development of the process of the Normann patent for use in converting liquid fats into hard saturated fats for soap making that Kayser was employed in England and it was after some three years of his work with Joseph Crossfield & Sons in the process of the Normann patent for soap that he came to this country.

The attempt to distort the meaning of the Normann patents into an indication of an incompletely hydrogenized substance or one capable of or intended for use as a food product is fully answered by Dr. Baskerville (pp. 468-9, Qs. 171-3).

The **Fokin** articles in the Russian Physical-Chemical Society (pp. 595-7) are academic chemical articles about laboratory experiments without any industrial application. The aim of the author appears to have been to obtain saturation. The only experiments given in detail are with oleic acid, which according to proof is not edible either hardened or otherwise (p. 171, Q. 428). The vague suggestion about almond and olive oil referred to in the petitioner's brief is too vague to form the basis of even a guess as to what it referred to.

The **Bedford and Williams** British patent No. 2520 of 1907 (p. 587) throughout speaks only of saturation. It says (p. 587): "This invention re-"lates to * * * the conversion of unsaturated "fatty acids or their esters into saturated acids or "their esters".

The **Erdman** German patent (p. 592) also relates only to saturation, or, in other words, the production of "stearic acid which solidifies at about 60°" (p. 594), which, of course, means substantially saturated. The claim calls for "the production of saturated compounds".

Paal & Roth's 1908 publication is summed up at the outset of their 1909 publication (42 Berichte), saying (p. 606):

> "The hydrogenization of the esters of the "unsaturated fatty acids whereby esters of "fatty acids were produced, led to a deep "seated change in the properties of the fats, the "new products being pulverizable, crystalline "masses."

It acknowledges that

> "a complete hydrogenization of these three "fats, so that a product with 0 iodine number "was obtained, was not successfully accom- "plished", but states that "the quantity of un- "saturated acid ester * * * was extremely "small,"

and also that this was shown by the iodine numbers, of which it mentions, 0.65 and 9, which we know to represent substantially solidity and hardness. It then says

> "in continuing these experiments we have at- "tempted to carry the catalytic reduction of "the fats to completion,"

by which it means theoretical completion, or completion to a point having an iodine number of 0.

Both the products which Paal & Roth refer to as "complete" and those as "incomplete" therefore were substantially or approximately complete from the standpoint of this case; because, having

iodine numbers ranging from 9 to 0, they were substantially solid, hard.

The incompletely hydrogenized cotton seed oil of Paal & Roth is described as (Rec. 613) "a yel-"lowish white brittle mass which melted at 56-60° "and had an iodine number of 1.9". This is altogether too hard to bear any resemblance to lard. The completely hydrogenized cotton seed oil was described as a "brittle mass nearly white in color, "which melted at 57.60° * * * the iodine "number was 0".

The Paal & Roth disclosure has been treated in defendant's brief as though it were a serious attempt at commercial manufacture, instead of being, as it was in fact, a typical laboratory experiment performed upon really minute quantities of material (1.8 grams of material is about one-third of the weight of a five-cent piece) carried through a process which is bound up with the use of such impossible reagents as colloidal palladium, gum arabic and chloroform. The utterly impracticable character of the whole operation, considered as a manufacturing proposition, is freely admitted by Paal himself in a recent British patent describing quite another process (British, 5188 of 1911, Plaintiff's Exhibit 14). Paal there says:

> "The technical application of this method of Paal and Roth to the catalytic reduction of the fats and unsaturated fatty acids according to Dr. Normann's said patent is, however, hindered by the high price of colloidal palladium which after each hydrogenisation is transformed into the (in)active gel form by the procedure necessary for isolating the product of the reduction. Moreover, in using this method of Paal and Roth, the fats must be converted into emulsions prepared by means of gum arabic, and the unsaturated

fatty acids must be converted into aqueous solutions of their alkali salts. In order to reduce large quantities of these substances, very large volumes of liquid are, therefore, required. The recovery of the valuable gum arabic is also a tedious and expensive process. If attempts be made to replace gum arabic by other cheaper emulsifying agents—for example, solutions of soap or of saponin—the fatty emulsions thereby obtained are not reduced by palladium sol and hydrogen" (p. 525).

Dr. Baskerville discusses Paal & Roth at pages 471-3.

The knowledge that the hydrogenizing process is progressive, like a great many other chemical processes, is as old as the process itself, but it was never known until the invention of the patent in suit that there was any utility whatsoever for any purpose whatsoever in stopping the process short of substantial completion or in taking any product from the process during its progress. On the contrary, the sole object was to so perform the process as to have it progress as rapidly and economically as possible to substantial completion. There were no products taken short of completion because no one had conceived of any utility for them. The melting point tests of the progress of the process consisted, as they do in all progressive chemical processes, of taking the least that could be taken for the purpose. It was not more than could be examined in a watch crystal and thrown away. There was no reason even for separating it from the nickel powder catalyst and, therefore, in the condition that it existed till thrown away, it could not have been used for any purpose even if it had existed in sufficient quantity.

The mere incidental production of a minute portion of a body while the experimenter was in search of something else has always been held irrelevant and immaterial as matter of law (*infra*, p. 95), and we may, therefore, dismiss as irrelevant the knowledge that the process was progressive and that melting point tests were made to determine its progress.

This is not merely the case where a body existing and used in one art, such as soap, is transferred to another art, such as food. Here the test portion, indicative merely of progress, had no utility at all for any purpose, and, therefore, had no existence in any art whatsoever, which means that in the eye of the law it had no existence at all.

Kayser Experimental Samples.

It is alleged in the appendix to petitioner's brief (p. 109) that Kayser brought with him from J. Crossfield & Sons samples of hydrogenated cotton seed oil which showed an iodine value of 52.26 and a melting-point of 39.3° C. This statement is based upon a report of Kayser (Rec. p. 76) which involves an obvious error and the correction of that error. The defendant has seized upon the error and ignored the correction.

That an actual and obvious mistake is involved in the statement of the melting-point of these samples as 39.3° C. is evident from the following:

(*a*) This melting-point figure is immediately followed in the context of the report by the words in parenthesis, "The laboratory sample melted at 49.9° C." The whole context in the record proves that this parenthetical statement is a correction. The parenthetical statement was, it appears, made by

Dr. Bender, the chemist of Procter & Gamble. It undoubtedly represented his determination of the melting-point of his Crossfield material, by his laboratory samples of the same. Further, Mr. Kayser's report immediately following this statement (p. 76) says:

> "The melting point of fatty acid, prepared from first lot of hardened cottonseed, is 62° C. This is several points higher than I ever got before. Presumably the composition of your oil differs somewhat from that of the oil I handled formerly."

The report of the next experimental lot by Kayser, on the next page, concludes with the statement:

> "Dr. Bender reports as follows:
> (No sample sent to Laboratory)."

It is very evident from the record (Rec. pp. 76-7) that when a sample was sent to the laboratory Dr. Bender would make a melting-point determination. It is very clear, therefore, that the note by Mr. Kayser relative to samples from Crossfield which showed an iodine value of 52.26 and a melting-point of 39.3° C. was intended to be, and was, corrected by the statement in parenthesis by Dr. Bender; and that the laboratory sample was one of these samples from Crossfield & Sons which was erroneously reported as having a melting-point of 39.3° C.

(*b*) Mr. Burchenal testifies (p. 166, Qs. 1103-4) that he saw the samples which Mr. Kayser brought over with him from Crossfield, and that he never saw any sample with a melting-point of 39.3° C. and that all he saw were very hard. Mr. Anderson, when asked about this report of the Crossfield

samples, says that the only explanation he can give is that the sample was erroneously reported as 39.3° C. by Crossfield and our tests showed 49.9° C. (Rec. p. 126).

(*c*) The defendant went to extreme limits in the production of experimental samples to correspond to analyses in the prior art and prior publications, as well as in the plaintiff Company's records, and yet it has produced no sample corresponding to this. Can we doubt why? A melting-point of 39.3° C. cannot possibly, so far as known, be associated with an iodine value as low as 52.26. The two figures, referred to a product made by hydrogenizing cottonseed oil by Kayser's method, are obviously incompatible, and one or the other must be wrong. That the error lay in the melting-point figure is established, not merely by Bender's correction on the face of the report, but by the uniform testimony of all who saw them, to the effect that these Crossfield samples were hard products.

(*d*) This incompatibiliy of the melting-point and iodine value which figures in the uncorrected report is made clear from a consideration of the same constants in defendant's Exhibits L-6 and L-7, which were likewise made from cottonseed oil and by the Kayser apparatus. In L-6 a reduction of the iodine value to 55.4 as given by Richter (Rec. p. 368) corresponded to a melting-point of 42.1. A further reduction in the iodine value to 54.5 raised the melting-point to 43.1 (sample L-7). It is evident that a still further reduction of the iodine value to 52.26 would still further raise the melting-point to or toward 49° C.; and that in no conceivable way could the melting-point revert to 39.3°

C., it being admitted by all that the melting-point rises as the iodine value falls.

Defendant is not unskilled in these matters. It has not overlooked this plain relationship; it has ignored it. It has chosen to seize upon a mistake, —perhaps the striking of the wrong key of the typewriter,—and to make that mistake the basis and point of support of its whole argument. We say this because wherever the allegation is made that Burchenal was not the first to produce a semi-solid product by the partial hydrogenization of oil (and the reiterations of this allegation are legion) the allegation is supported by a reference to the report in which this evident error occurs.

(*c*) Even assuming for argument the possible existence of this impossible material, having the inconsistent iodine value of 52.26 and a melting-point of 39.3° C., there is no reason whatever for assuming that it would be semi-solid or lard-like. The iodine value is materially below the minimum (55) mentioned in the Burchenal patent. The characteristics of such a material could be established only by reproducing it, and defendant surely would have done this had it been possible. The thing itself is simply a myth.

The next ground upon which petitioner's appendix (p. 110) relies, to show that as a final product Kayser produced such semi-solid products, are the samples made by defendant's experts for the purposes of this suit, marked L-6 and L-7, with melting points of about 42° C. and 43° C. These samples are alleged to be based on the Kayser report of an experiment (Rec. p. 77), reading as follows:

"Fat Hardening Process by E. C. Kayser.

"Result of the Last Two Parallel Trials:

"5 hrs. at ordinary pressure M. P. 42° C.
"1 & ½ hrs. at 60 lb. pressure M. P. 43° C.
"Temperature in both cases 160° C.
"Catalyser, expressed as pure metal, 0.6 lb. per 100 lb. C. S. Oil, March 5th, 1908."

It is evident from the report itself that the sole purpose of the experiments was to determine the effect of pressure upon the rate of reaction in the Kayser process. To use these pressure tests to anticipate Burchenal in the manner in which defendant attempts to use them would violate many principles of patent law which are so elementary that it is only necessary to enumerate them for the Court to recognize them.

(*a*) These Kayser experiments were made under the general direction and supervision of Burchenal as general manager and presumably any inventions involved in them were his.

(*b*) They cannot establish any statutory defense of publication because they were not published.

(*c*) They cannot establish any statutory defense of use because they were not a use of the product, nor was the product produced in any quantity such as could have been put to any useful purpose. They were merely laboratory melting-point tests, probably made on a watch crystal in the usual way, the product being thrown away as soon as observed. Such a thing has never been held to be a use, as against a product patent.

(*d*) They were an abandoned experiment so far as any semi-solidity of the product is concerned. That they were a mere experiment is admitted. That they were abandoned is shown by the fact that they were not followed up or repeated. Nothing

was done about them. They were lost sight of and passed out of recollection.

(*e*) To use them against the patent is also obnoxious to the principle that a mere accidental or incidental production while the operator was in pursuit of something else does not amount to anything. The operator of these experiments was in pursuit of the determination of the relative effect of different pressures upon the rate of hydrogenation in the Kayser process. That he got any particular melting-points was purely accidental or incidental and of no significance whatsoever, except for comparison of the one with the other. For this purpose he might just as well, time permitting, have run his experiment longer and got melting points above 50° C. Burchenal explains (Rec. 79, x-Q. 869) that what Kayser did was a mere experiment to determine the effect upon the hydrogenization process of increasing the pressure by hydrogen:

> "In my opinion this was an experiment to indicate the value of pressure in saturating fats. It states here that a sample run 5 hours at ordinary pressure having a melting point of 42°, while a sample at 60 lbs. pressure—which was much higher than the ordinary pressure—ran an hour and a half and had a melting point of 43°, showing very much greater efficiency in that case between low pressure and high pressure."

It is very evident from the report, even without this explanation of Mr. Burchenal, that the experiment did not aim to produce a definite product, and least of all did it aim to produce a definite final product. The note indicates that the Kayser apparatus was operated for five hours at "ordinary pressure" (whether

this means normal pressure or the usual operating pressure does not appear), and at this point a sample was taken and appears to have had a melting-point of 42° C. The apparatus was then operated for 1½ hours under 60 lbs. hydrogen pressure, after which a second sample proved to have a melting point of 43° C. Whether the second run was a mere continuation of the first on the same charge of oil, or whether the second run started with a fresh batch of oil, does not appear from the report. Burchenal assumes the latter to have been the case, while the defendant in its alleged reproduction of the products (samples L-6 and L-7) has apparently assumed the former. However this may be, the times seem to have been chosen by Kayser to fall within the limits of a good day's work, and presumably everybody went home satisfied that they had learned something about the effect of increased hydrogen pressures. Whether the run was carried further the next day does not appear.

(*f*) The samples taken in this Kayser experiment for testing melting point would be black with catalyst, would carry no suggestion of an ultimate product of any kind, and least of all of a food, and would be thrown away as soon as they had served their purpose of indicating something as to the effects of variations in the pressure of hydrogen. That this experiment did not in fact suggest to any one the idea that by stopping the commercial process at the point of semi-solidity a good food product would result, is shown by the fact that it was not until a year and a half later that this idea occurred to any one, when Burchenal conceived Crisco and worked it out in the fall of 1909.

The defendant "reproduced" these Kayser sam-

ples—except for the conditions of time and the variations of pressure. L-7 was made by further hydrogenation under unchanged conditions of the batch of which L-6 was a sample.

The reference to the Von Puhl testimony made by the appendix (p. 116), cannot be taken seriously. Even if Kayser ever said such a thing to Von Puhl it was after the food idea had been suggested to him by Burchenal, and, therefore, mere gossip as to what Burchenal was planning at the factory. But it was also at the time when everybody's idea was only the "compound" idea, and this is confirmed by the fact that both Von Puhl and his wife describe the specimen Kayser showed them as hard. It was therefore only fit for compounding.

There is no dispute as to the hardness of all of Kayser's samples. The whole testimony in that regard may be briefed as follows:

Burchenal. Samples "hard material" (p. 6, Q. 40), "very hard" (Q. 43). Melting point 60°, 59°, 61°, 62° (p. 16). "Saturated material" (p. 16). "Hard material" (p. 16). "Very hard—a good deal the appearance of a piece of porcelain or china" (p. 19, Q. 158). "Very hard material" (p. 24, Qs. 276, 282). "As completely hydrogenized as they knew how to do it" (p. 25, Q. 293). "Approximately complete" (Q. 308). Never semi-solid (Q. 311). All Crosfield samples "hard material" (Q. 318). Never semi-solid (Q. 324). Hard material supposed to be as near completely hydrogenized as we could do it (Q. 535). Saw all Crosfield samples, nothing with melting point 39.3 (p. 166, Q. 1103).

McCaw. "The flavor, structure and material and its hardness were all unfit for that purpose" (p. 83, Q. 32). So hard used only 10 per cent. (p. 84).

Used 10, 12 and 14 per cent. hardened cottonseed oil (p. 181, Q. 247).

Von Phul (p. 228, Q. 23). Looked like tallow. "It was hard."

Mrs. Von Phul (p. 250, Q. 24). Looked like tallow; not good for cooking.

Kayser Patents.

The appendix to petitioner's brief (p. 113) erroneously undertakes to treat the Kayser patent No. 1,008,474 as prior art and places it in parallel with the Burchenal patent. It was not prior art, but on the contrary, was not applied for until February 18, 1910, prior to which time Burchenal had been making "Crisco" in small quantity, ever since November, 1909, as appears from the testimony of Burchenal and Morrison (pp. 50, 195).

In patent No. 1,008,474 Kayser makes no *claim* to partial hydrogenizing. On the contrary, his claims are directed to "a pulverulent catalyzer con-"sisting of a light, voluminous, finely divided, inert "support", manifestly for the reason that at the time he filed this application Kayser knew that Burchenal had already invented "Crisco". The statements to which petitioner refers in this patent are, therefore, simply statements on the part of Kayser that his peculiar catalyzer could be used to produce the product of which Burchenal was the prior inventor.

Petitioner's appendix also refers (p. 112) to a sentence in Kayser patent No. 1,004,035, stating: "The time of treatment will vary with the progress "realized and with the degree of saturation aimed "at" (p. 574). Clearly this has no reference whatever to the production of a lard-like semi-solid but

refers simply to the fact that the time of treatment for absolute saturation must be longer than for that degree of saturation which, while not absolutely complete, was still sufficient for the purposes then in view, such as soap or compounds.

Petitioner's appendix (p. 115) asserts that Mr. Burchenal disclaimed inventorship of the process. The questions and answers quoted from Mr. Burchenal manifestly relate to the hydrogenating process for which these Kayser patents were granted. The process of the first Keyser patent No. 1,004,035, as set forth in the claims of that patent, consisted in bringing films or spray of a mixture of the oil and pervulent catalyzer into intimate contact with an atmosphere of hydrogen by mechanically agitating the mixture in the presence of hydrogen or an atmosphere of compressed hydrogen. The later Kayser patent No. 1,008,474 was for a process which consisted in agitating in the presence of hydrogen a heated mixture of the oil and a particular kind of catalyst. These processes were improvements upon the process referred to in the patent in suit for the production of "Crisco", and Burchenal never claimed to be the inventor of those improved processes, but any admission that he may have made to that effect is not an admission affecting in any way his inventorship of the product here in suit or the process of producing the same.

If Kayser, instead of Burchenal, had been the inventor of the product here in controversy, or the process of producing the same, Procter & Gamble, who controlled both, would certainly have seen to it that this product was claimed in one of the Kayser patents. The fact that they claimed it in an application of Burchenal shows conclusively that they, knowing the facts, knew that this product

was Burchenal's invention and not Kayser's. If it were not so, their course would have been suicidal without any reason.

The fact, if true, that the product transiently existed before, causing no remark, adding nothing to the sum of human knowledge, seen with the eye, yet perceived not, unrecognized as serving any useful purpose, would not negative its novelty.

This is the law of numerous cases.

Ransom v. *New York*, 1 Fish. 252, 265-6; Fed. Case, 11573 (1856, HALL, *J.*).

"Now, in reference to this question of 'prior invention,' it is perhaps necessary that you should consider that 'invention,' in the sense of the patent law, is the finding out, contriving, devising, or creating something new and useful, which did not exist before, by an operation of the intellect; and that if there was, at any time, or under any circumstances, an accidental combination similar in character to that which the plaintiffs have patented—if that combination was made accidentally or otherwise, under such circumstances that the public obtained no knowledge of the invention—obtained no knowledge of the mode in which this hydrostatic pressure could be made available, then the invention was not made by the parties who produced this combination. In other words, if the parties who made the combination, although seeing with the eye, perceived not, or hearing with the ear, understood not what would be the result of this combination, they added nothing to their own stock of knowledge and the fact if observed by other men (if they understood it not), added nothing to the knowledge of science upon that subject. Therefore the invention was not made until the parties contriving, or others observing, the existing combination, saw that it could be made available for the purpose of producing a result,

similar to the one which the plaintiffs have mentioned in their specification."

Tilghman v. *Procter*, 102 U. S. 707, 711: "We do not regard the accidental formation of fat acid in Perkins' steam cylinder from the tallow introduced to lubricate the piston (if the scum which rose on the water issuing from the ejection pipe was fat acid) as of any consequence in this inquiry. * * * The accidental effects produced in Daniels' water barometer and in Walther's process for purifying fats and oils preparatory to soap making, are of the same character. * * * If the acids were accidentally and unwittingly produced, whilst the operators were in pursuit of other and different results, without exciting attention and without its even being known what was done or how it had been done, it would be absurd to say that this was an anticipation of Tilghman's discovery."

Clough v. *Barker*, 106 U. S. 166, 175: "Any further raising of the tube was accidental and not a part of the law of the structure. The object of raising and lowering the tube was, by a less or greater pressure on the cone, to open or close the slit in the burner. * * * Any raising of the tube unnecessarily high, so as to admit of a flow of gas through an orifice between the tube and the cone to the frame, cannot be regarded as amounting to an invention of what Clough invented. The structure was not designed for the same purpose as Clough's, no person looking at it or using it would understand that it was to be used in the way Clough's is used, and it is not shown to have been really used and operated in that way."

Carnegie Steel Co. v. *Cambria Iron Co.*, 185 U. S. 403, 423: "To anticipate a process patent, it is necessary not only to show that the prior patent might have been used to carry out the process, but that such use was contemplated, or that the leading idea of the Jones patent of

maintaining a dominant pool in the reservoir was such a use of the Witherow patents as would have occurred to an ordinary mechanic in operating his device. Whether the reservoir in the Witherow patent was partly or fully emptied, seems to have been a matter of complete indifference to the inventor, and the idea of maintaining a constant quantity therein seems to have never been conceived by him."

Wickelman v. *Dick Co.*, 88 Fed. 264, 266, C. C. A., 2d Circuit: "Assuming, however, that he had used it, and had coated it with soft paraffine, it is obvious that he had done so in ignorance of the characteristics of the paper and of the necessary consistency of the coating, and that the product, if capable at all of use for a stencil sheet, was an accidental product, which contributed nothing to the prior art of making such sheets.

* * * * *

"The chance operation of a principle, unrecognized by any one at the time, and from which no information of its existence, and no knowledge of a method of its employment, is derived by any one, if proved to have occurred, will not be sufficient to defeat the claim of him who first discovers the principle, and, by putting it to practical and intelligent use, first makes it available to man."

German-American Filter Co. v. *Erdrich*, 98 Fed., 300, 307, by Judge GRAY: "That this condition should have existed by accident in any process other than Stockheim's, or have been produced without its importance being recognized and proclaimed, cannot affect Stockheim's claim. It may well have been that, before the Stockheim process was explained, some one may have filtered highly-charged beer under pressure successfully; the filter having been kept full of beer the while. But, so far as the evidence discloses, no one recognized that as the essential condition of a successful operation, or explained its function as a step

in the process. One who accomplishes a result by a process which is only partially or not at all understood by him has invented nothing, and cannot deprive another, who afterwards discovers and proclaims the true principle of the operation, of the rights of an inventor."

In *German Filter Co.* v. *Loew Co.*, 103 Fed. 303, 309, Judge (Justice) DAY quotes and adopts the above.

Tannage Co. v. *Donallan*, 93 Fed. 811, 821, Judge COLT: "It is also true that a skin dyed by the Francillon process may be tanned on its surface, which does not make it leather, or accidently tanned through and through, which would make it leather. But this result is not a sufficient reason for holding that Francillon anticipates Schultz. An accidental result not contemplated by a former inventor cannot anticipate a later patent."

Pittsburgh Reduction Co. v. *Cowles*, 55 Fed. 301, 307, Judges TAFT and RICKS: "But suppose it to be a fact that in De Ville's process alumina was dissolved in the bath from the anode, and that thereupon it was electrolyzed, as in the Hall process, it was a mere accident, of which De Ville made no note, and which, therefore, we may reasonably infer, he did not observe. Accidents of this character cannot be relied on as anticipations of a patented process when the operator does not recognize the means by which the accidental result is accomplished, and does not thereafter consciously and purposely adopt such means as a process for reaching the result."

Boyd v. *Cherry*, 50 Fed. 279, 282, Judge MCCRARY: "The proof undoubtedly shows that, before the date of Cooley's invention, several other persons had been in the habit of occasionally submerging vessels containing milk during the process of raising cream therefrom, and in some instances, at least, such use was

public. But it also clearly appears that none of these persons proceeded so far as to discover the utility of the process, or were aware of the fact that by it the important and valuable results since achieved by Cooley could be secured. * * * It follows that the controlling question upon this branch of the case is whether it is necessary for the defendant, in order to sustain the defense of prior use, to show, not only that the process was publicly used before Cooley's discovery, but that it was so used by some person or persons who perceived the fact of its utility, and who knew what could be accomplished by it, and who communicated this information to the public. But, upon authority and upon principle, I am constrained to answer this question in the affirmative."

Chisholm v. *Johnson*, 106 Fed. 191, 200. BRADFORD, *J.*: "Such hulling, if any occurred, was not contemplated by Madame Faure, and was purely incidental or rather accidental and commercially unimportant."

American Bell Telephone Co. v. *Dolbear*, 17 Fed. 604, 1883. LOWELL, *J.*: "But if it be admitted that the Reis instrument is capable of such use to a very limited extent and after a change in its proportions, and when used in a way which the inventor did not intend, still I am of opinion that it was not an anticipation of Bell. The case of *Clough* v. *Barker*, 106 U. S. 166 (S. C., 1 Sup. Ct. Rep. 188), would apply to such state of facts. That case, undoubtedly, is an exceptional one, and its doctrine must be applied with much reserve; but when so applied it will occasionally be useful. It is, that if a certain machine or organization is capable of a certain use only under unusual and, as I may say, abnormal conditions, so that a person of skill and knowledge in the art to which it relates, or a person using the machine, would not, unless by accident, discover that it was capable of such mode of operation, it shall not be considered an anticipation of a machine

or organization which is founded upon such mode of operation."

Kuchmsted v *Farbenfabriken*, 179 Fed. 701, 707, 1910; C. C. A., 7th Cir.: "Inasmuch as response to tests seems to be a fair method of determining the lack of identity of the product of the patent in suit with Kraut's product, it becomes important that the results of the tests should correspond in all material respects. If the construction placed upon Kraut's language by defendant's expert is to prevail over what might seem to be the unskilled judgment of counsel and court in that respect, it follows that the language of the patent in suit with reference to Kraut's article is justified, and that, failing to meet these material tests, the latter cannot be said to correspond to Hoffmann's product. Thus, while Kraut seems to have pointed out the method of obtaining a practically pure acetyl salicylic acid by the boiling water process, giving ether, wine spirits, and benzole as solvents—that is, dry solvents—it appears that in two important respects his language is misleading. It is evident that he was not principally concerned with obtaining the pure article, nor with anticipating Hoffmann's tests. He does not give a process which can be said to lead one skilled in the art to the product of Hoffmann, if his language is to be followed literally. Something has to be supplied before Kraut's product can be deemed to meet Hoffmann's decomposition test."

Perkins v. *Solva*, 223 Fed. 792, 796. SANBORN, *J.*: "If an inventor finds a chemical substance devoted to a particular use, conceives the idea of applying it to a new purpose, and on experiment discovers that the substance must be treated in a particular way to suit his purpose, which method of treatment is essential to his end, but of less importance in obtaining the prior art results, it is apparent that he may be

regarded as a real inventor, even though he selects a specific treatment in an occupied field. If he were making only a paste, as others had done, it might not be invention to select part of the old field of experiment, although he might thus produce an improved paste. But he discovers a novel and valuable use for the old product, which he modifies to suit the new purpose. In connection with his new and useful results, and as against a person who produces the old product as modified, and who sells it for the new purpose, he is an inventor, entitled, not only to restrain such sale, but also the manufacture or use of the product."

It would appear clear from this line of authorities that to stop the hydrogenation process and utilize the material in the progress of its development in a way never before suggested or hinted at in the food product art or any other art, would clearly involve invention. Especially is this true in a chemical case where the Courts have frequently recognized the distinction between mechanical and chemical cases on this question of invention.

Tyler v. *Boston*, 7 Wall. 327, 330: "A machine which consists of a combination of devices is the subject of invention, and its effects may be calculated *a priori*, while the discovery of a new substance by means of chemical combinations of known material is empirical and discovered by experiment."

Naylor v. *Alsop*, 168 Fed. 911, 919, C. C. A., 8th Cir.: "It should also be borne in mind in "considering this subject that reasoning by "analogy in a complex field like chemistry is "very much more restricted than in a simple "field like mechanics. This distinction has "been frequently recognized by the courts."

Badische v. *Levenstein*, 4 Pat. Design and

Trade-Mark Cases, 468, English House of Lords: "A complete answer is given to this "argument by Dr. Greiss, one of the highest au- "thorities on this branch of chemistry. He says "in 1864 'I definitely state * * * if I had "'been a little cleverer analogy would have in- "'duced me to prepare this very dye which is "'now under consideration. But analogy did "'not lead me to do that; analogy does not go a "'long way in chemistry.'"

Stevens v. *Keating*, 2 Webs. Pat. Cases, 181: "I do not think that doctrine applies altogether "in the case of chemistry, because although "you can predicate with confidence in mechan- "ics in some instances, and in some cases where "mathematics can be applied, in chemistry you "almost entirely fail. * * * You cannot "anticipate the result—it is a mere question of "result from experiment."

The development at The Proctor & Gamble Company plant at Ivorydale prior to the latter part of 1909 and all the work of prior investigators, as disclosed in prior patents and publications, was solely and only directed toward completing hydrogenation, that is, to cause the material acted on to take up all of the hydrogen it could be forced to absorb. The chemical experiments in the laboratories of scientists who were investigating the subject were to convert the oleic acid into stearic, to convert all the liquid triglycerides into solid triglycerides, not to change the proportional relationship between the liquid triglycerides.

To take a sample to note the progress of the reaction toward the end desired (complete saturation) did not even involve the stoppage or the arrest of the process which moved on to its appointed end. All that any intermediate samples

that might have been taken showed the investigator was that he was more or less distant from his goal. In no case did any one of these intermediate test samples suggest any use, nor were they of sufficient size to be of any use.

Conclusion.

It is respectfully submitted that the product of the patent is new, that defendant has infringed, and that the decision of the Circuit Court of Appeals should be affirmed.

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